41

the OIL AND GAS JOURNAL

SEP 17 1937

Science Library

EPTEMBER 16
1937

ANNUAL PIPE LINE NUMBER

including

Articles on Engineering nd Economic Developments

Maps

Complete Personnel

PRICE
CENTS

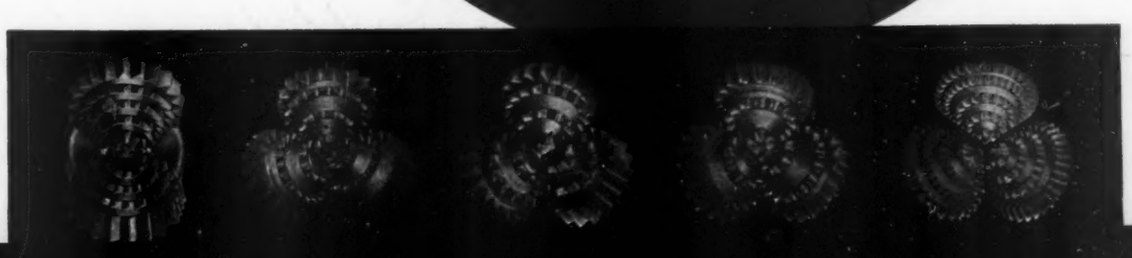
This is an Age of SPECIALIZATION---

. . . . Drilling to great depths through difficult formations is one of the accomplishments of this SPECIALIZATION period.

There's a **Hughes Rock Bit** especially designed—in fact "**Tailor-Made**" to bore through any type or kind of hard formation.

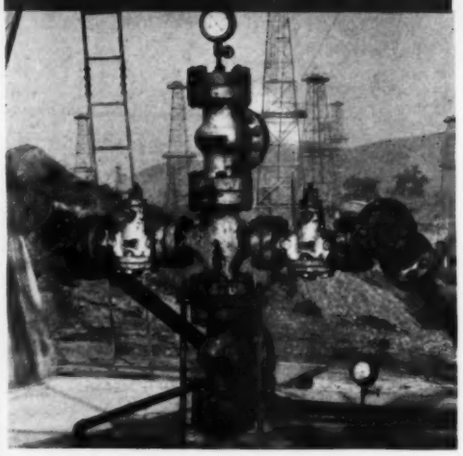
Get the "Right" Bit for the job —"specialize" with Hughes "Tailor-Made" Rock Bits.

HUGHES TOOL COMPANY
HOUSTON, TEXAS, U. S. A



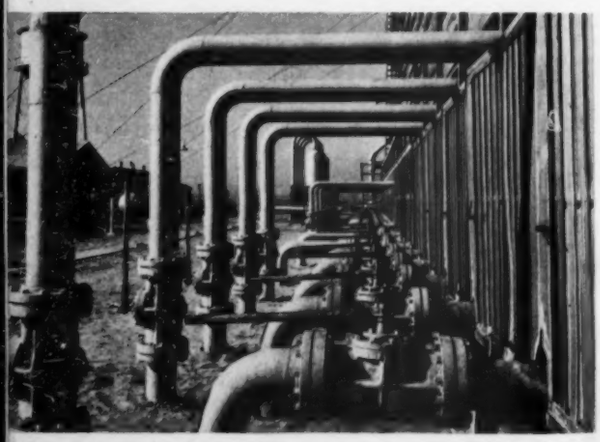
Merco bronze alloy valves handling weak acid in a modern treating plant.

. . . as told in pictures BY THE NORDSTROM VALVE *Cameraman*

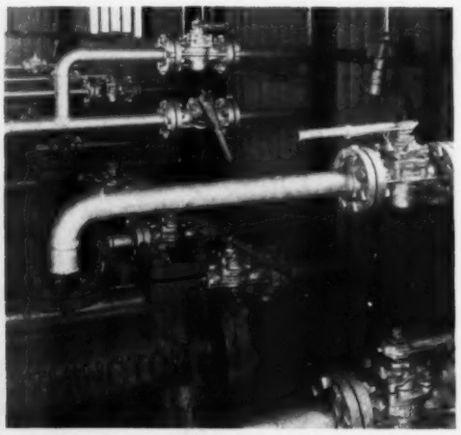


Nordstrom Hypreseal Valves on Christmas tree at Baldwin Hills, California.

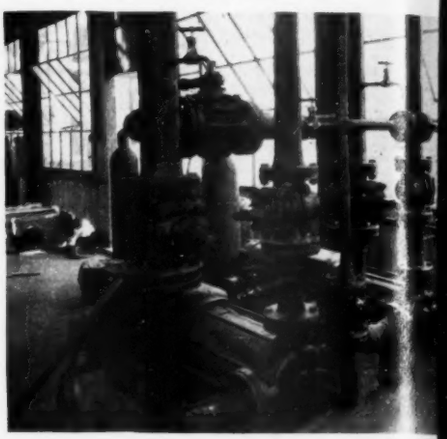
Nordstrom Valves on mud lines. 10" geared valve on line with 3" Hypreseal valves (2000 lb. working p on pump lines.



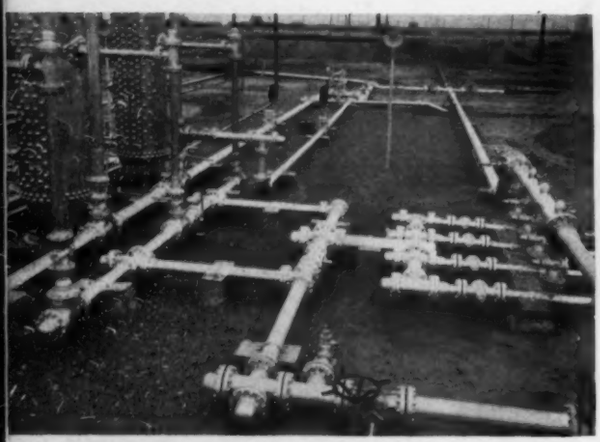
Series of 8" Nordstrom Valves on recently constructed cooling tower, 125 to 250 lbs. pressure.



Series of 2, 3, and 4" Nordstrom Valves on charging pumps in a Texas natural gasoline plant, 500 lb. working pressure.

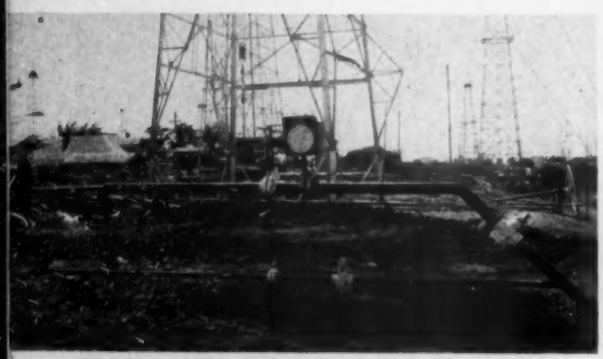


Nordstrom Valves on caustic pump lines in an a ing plant.

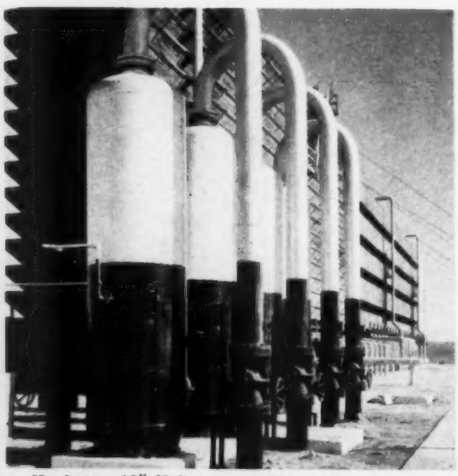


Nordstrom Valve on gas trap lines in Belridge, California field

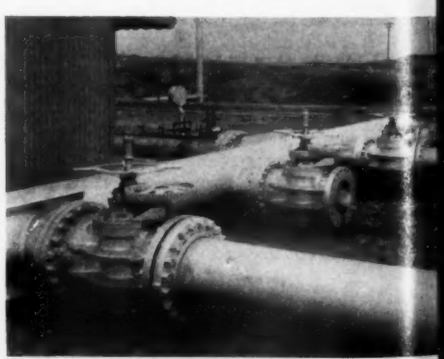
Nordstrom Valves on compressor lines in natural plant in New Mexico.



Emco Meter setting with Nordstrom Hypreseal Valves in Oklahoma field.



Nordstrom 12" Valve on scrubber column operating at from 180 to 450 lbs.



Nordstrom Valves on gas transmission lines at tion in a California field.

NORDSTROM *Lubricated* VALVE

MEETING EVERY MAJOR VALVE NEED

WITH PATENTED "SEALDPORT" LUBRICATION

Merco Nordstrom Valve Co. *A Subsidiary of* **Pittsburgh Equitable Meter Co.**

Main Offices: Pittsburgh, Pa. *Branch Offices:* New York City, Buffalo, Philadelphia, Columbia, Memphis, Atlanta, Chicago, Kansas City, Tulsa, Houston, Los Angeles, Oakland. *Canadian Representatives and Licensees:* Peacock Brothers, Ltd., University Tower Building, Montreal, Quebec.

the OIL AND GAS JOURNAL

PUBLISHED WEEKLY BY THE PETROLEUM PUBLISHING COMPANY AT TULSA, OKLAHOMA

P. C. LAUINGER
President

C. O. WILLSON
Editor

W. T. ANDERSON — *Managing Editor*
JAMES McINTYRE — *Consulting Editor*

W. T. ZIEGENHAIN — *Engrg. Editor*
L. G. E. BIGNELL — *Prod. Engrg. Editor*

C.K.FRANCIS,Ph.D. — *Technical Editor*
W. L. NELSON — *Metallurg. Editor*

Associate Editors

T. F. SMILEY
DAL DALRYMPLE
D. H. STORMONT
T. P. SANDERS
PAUL REED

District Editors

Houston
Sterling Bldg.
NEIL WILLIAMS
GEORGE WEBER
F. L. SINGLETON

Fort Worth
L. E. BREDBERG
Petroleum Bldg.

Shreveport
MITCHELL TUCKER
City Bank Bldg.

Los Angeles
L. P. STOCKMAN
Union Oil Bldg.

Washington
HENRY D. RALPH
Natl. Press Bldg.

Saginaw
O. C. PRESSPRICH
Saginaw News Bldg.

Denver
T. R. INGRAM
State Office Bldg.

New York City
H.STANLEYNORMAN
415 Lexington Ave.

Oil City
J. P. O'DONNELL
Derrick Bldg

Toledo
G. A. WHITNEY
P. O. Box 98

Chatham, Ontario
V. LAURISTON
Box 136

•

S. H. ROURKE
Business Manager

M. F. BALDWIN
Circulation Manager

•

Advertising

E. KLAPPENBACH
Advertising Manager

New York City
C. L. CAIN
415 Lexington Ave.

Cleveland
HOWARD MARKT
Leader Bldg.

Chicago
C. R. FARMER
300 W. Adams St.

Tulsa
K. J. LANGLEY
114 W. 2nd St.

Houston
WAYNE RIVES
Sterling Bldg.

Los Angeles
J. H. TINKHAM
1406 S. Grand Ave.

Cologne, Germany
A. J. CHAMBERS
1 Laudahnstrasse
Koln-Lindenthal

VOL. 36, NO. 18 — SEPTEMBER 16, 1937

Table of Contents

NEWS DEVELOPMENTS

Summary ... 51
Gasoline Pipe Lines Serve Area Accounting for Half Motor Fuel Consumption—*By W. T. Ziegenhain* ... 52
Mississippi Oil and Gas Developments—*By Henry N. Toler* ... 55
Sparks From the News ... 58
Steady Expansion in Coastal Refineries—*By George Weber* ... 59
Year's Experience Under Walsh-Healey Law—*By Henry D. Ralph* ... 61
Editorial ... 62
Conservation in Texas Panhandle Gets Results—*By L. G. E. Bignell* ... 63
Crude and Refinery Summary First Seven Months ... 71
Pipe Line Activity ... 74
Natural Gas ... 74
Refinery Expansion ... 75
Natural Gasoline ... 75
News from Foreign Lands ... 80
Field Problems—*By L. G. E.Bignell* ... 82
Technical Questions—*By C. K. Francis, Ph.D.* ... 86

PIPE LINE SECTION

Map of Trunk Lines in New Mexico and West Texas ... 88
The Pipe Liners' 24 Hours ... 89
Modern Methods in Reconditioning Line—*By Mitchell Tucker* ... 90
Lines in World's Greatest Oil Field Model of Efficiency ... 92
Pacific Gas Lines (Map) ... 94
Wax Plug Used to Clean Line of Interior Accumulations—*By F. D. Posey* ... 95
Pipe Lines Serving Active Oklahoma and Kansas Areas (Maps) ... 96
Determining Point of Water Condensation in Pipe Lines—*By A. D. Greene* ... 97
Novel Barge Buries Pipe in Mud ... 99
Personalities Behind the Pipe Lines ... 101-116
Extension of Eastern Gasoline Lines (Maps) ... 115
Stove-Pipe Method Important Development in Welding—*By A. F. Davis* ... 119
Canadian River Flood Problem on Pipe Line Crossings—*By L. D. Williams* ... 121
Modern Pipe Line Practice Uses Automatic Sampling—*By L. G. E. Bignell* ... 126
Standard of California Lines (Map) ... 128
Humble Butane Line Supplies New Polymerization Units ... 130
Pipe Line Earnings Improved but Taxes and Costs Up—*By H. Stanley Norman* ... 133
1937 Gauger's Equipment Shows Improvement—*By Otto D. Stallard, Jr.* ... 135
Looping of Interstate Gas Line Completed ... 140
Changing Conditions in Pipe Line Operations ... 142
Laboratory Inspection Controls Operation of Pipe Lines ... 149
Modern Methods of Controlling Unaccounted-for Gas—*By Chas. F. Turner* ... 154
Efficiency of Gas Lines Maintained by Purging—*By T. P. Sanders* ... 158
Purchased Power Has Won Pipe Line Recognition—*By W. H. Stueve* ... 161
Varying Schedule of Pipe Line Favors Purchase of Power—*By K. K. Kreamer* ... 167
Electric Power Is Moving Half East Texas Output ... 170
Central Coating and Wrapping Plants Speed Laying Line—*By Neil Williams* ... 179
Panhandle Eastern Looping Program Largest of Year—*By W. T. Ziegenhain* ... 185
Pipe Line Company Data ... 190
California 1937 Construction Longest in Years—*By L. P. Stockman* ... 191
New Lines Built in Southwest Texas and Others Planned—*By George Weber* ... 197
Cathodic Protection of Pipe Lines—*By Robert J. Kuhn* ... 201
Improved Methods in Oxy-Acetylene Welding ... 205
Gas Line From Rio Vista Field Nearing Completion ... 206
Electric Welding Under Various Conditions—*By Harold C. Price* ... 212
Latest Pipe Line Construction Methods on Gulf Coast—*By W. Mike Murphy* ... 214
Repowering of Texas-New Mexico Line ... 216
Personnel of Crude Oil Pipe Line Companies ... 219
Personnel of Gasoline Pipe Line Companies ... 230
Personnel of Natural Gas Pipe Line Companies ... 231

FIELD OPERATIONS

Field Operations Summarized ... 247
Southwest Texas—*By George Weber* ... 248
Eastern Fields—*By Staff Correspondent* ... 250
Kansas—*By Dal Dalrymple* ... 251
West and North Texas—*By L. E. Bredberg* ... 254
Gulf Coast—*By F. L. Singleton* ... 257-267
Rocky Mountain Area—*By T. R. Ingram* ... 258
East Texas—*By L. E. Bredberg* ... 263
Central West ... 264
Michigan—*By Otto C. Pressprich* ... 268
California—*By L. P. Stockman* ... 269
Oklahoma—*By Dal Dalrymple* ... 273
North Louisiana-Arkansas—*By Mitchell Tucker* ... 277
New York-Pennsylvania Gas Fields ... 279
Canada—*By Victor Lauriston* ... 280
Wildcat Operations ... 283 to 291

MARKETS AND PRICES

Crude Prices ... 270-298
Group 3 Market—*By D. H. Stormont* ... 294
A.P.I. Refinery Report ... 295
New York Market—*By H. Stanley Norman* ... 295
Tank-Wagon Markets ... 296
Refinery Prices ... 297

ADDITIONAL FEATURES

Monthly Field Summary ... 281
Do You Remember? ... 292
Personal Paragraphs ... 292-293
Record of Oil Securities ... 299
New and Improved Equipment ... 300-301
Oil Man's Calendar ... 302
Classified Advertising ... 302-303
Advertisers' Index ... 304

Rates: Domestic, 1 year, $6.00; 6 months, $3.00. Canadian and foreign, 1 year, $7.00; 6 months, $3.50. All subscriptions are payable in advance. Extra copies of special issues are reserved for subscribers' needs and may be purchased by subscribers at the price of 50 cents per copy.

Copyright, 1937, by The Petroleum Publishing Company

ATTENTION EAST TEXAS OPERATORS

HERE IS THE TOOL THAT IS CORRECTING WATER TROUBLES IN YOUR FIELD

BAKER CEMENT RETAINER

. . . and the proof of that statement is a matter of oil field record.

Since January, 1937 more than 50 Baker Cement Retainers have been set in East Texas and in all but two instances the water-oil ratio was decreased nearly 100%.

IT WILL COST YOU NOTHING TO FIND OUT ABOUT THIS PROVEN METHOD OF CORRECTING WATER TROUBLES. ALL YOU HAVE TO DO IS CALL TOM CROWDER — BAKER REPRESENTATIVE — AT LONGVIEW, TEXAS — TELEPHONE 837. ADDRESS, 903 Sandifer Street.

OPERATORS NOTE: Other districts having water trouble in their oil wells should get in communication with a Baker representative or the nearest Baker office.

There Are Many Important Applications for a Baker Cement Retainer in Correcting Water Troubles. A Typical One, a Squeeze Job, to Cement Off the Water Coming From Formation Below the Casing Shoe, is Illustrated at Right. Following is the Actual Field Report Covering this Job.

"This well had been cemented once before with a dump bailer but a successful water shut-off was not accomplished. We set a Baker Cement Retainer, pumped 115 barrels of clear water into formation at 700# after breaking it down at 1000#. We then by-passed fluid in tubing ahead of cement, closed Circulation Joint, and cemented well.

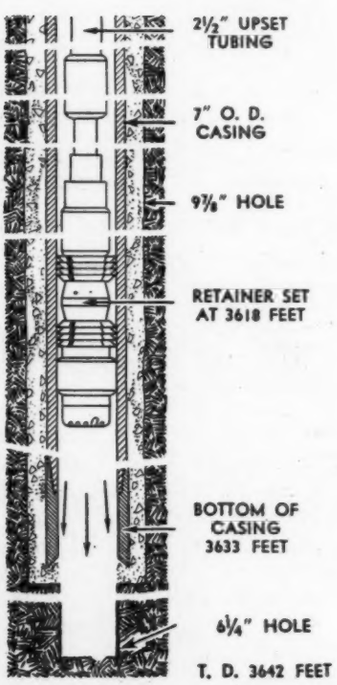
This particular well had been making between 25% and 30% salt water and was costing considerable to treat.

After Squeeze Job using Baker Cement Retainer they let it set five days and then drilled up the Retainer Body and the plug with cable tools in about 5 hours. They swabbed it in and it made ***pipe line oil with no trace of salt water.*** While only a small amount of cement was put below the Retainer, a complete water shut-off was secured and customer entirely satisfied."

The use of the Retainer eliminates the many disadvantages of the tubing method of cementing. It can be set at any desired distance above the shoe and extremely high pressures applied in order to break circulation or get the formation to take fluid before the cement is pumped into the tubing.

After the job is completed, there is no danger of stuck tubing since the run-in pipe is immediately raised and flushed-out. An important feature is the fact that no pressure has to be maintained by surface connections as the back pressure valve in the Retainer maintains the pressure on the cement after it is in place.

For complete details concerning the construction, operation and various applications of Baker Cement Retainer—see your 1937 Composite Catalog.



Other Applications

SQUEEZE JOBS
CEMENTING BEHIND SECTIONS OF PIPE
SERIES CEMENTING
PLUGGING OFF BOTTOM FLUIDS
PLUGGING BACK TO UPPER ZONES
TESTING
UPPER CASED FORMATIONS
AS A HEAVING PLUG

BAKER OIL TOOLS, INC.

Telephone JEfferson 8211 – HUNTINGTON PARK, CALIFORNIA – 2959 E. Slauson Ave.
Telephone WAyside 2108 – HOUSTON PLANT AND OFFICE – 6023 Navigation Blvd.

MID-CONTINENT OFFICE AND WAREHOUSE:
Telephone 2-8083 – Tulsa, Oklahoma – 312 East Fourth Street

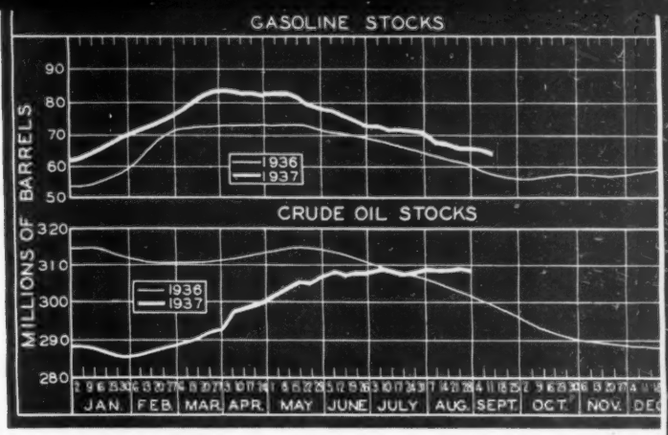
WEST TEXAS BRANCH OFFICE
Odessa, Texas – Telephone 317

EXPORT SALES OFFICE
Rm. 1914 – 19 Rector St., New York City
Tel. Digby 4-5515

ROCKY MOUNTAIN HEADQUARTERS
Tel. 2230–Casper, Wyoming – Box 1464

BAKER CEMENT RETAINER

Also Used as a Casing Bridge Plug



Decline in Output Continuing

A DECLINE of 52,123 barrels daily in crude oil production last week, making a total of 109,264 barrels for the period ending September 11, has brought a better feeling in crude oil markets. While additional reductions are needed in certain areas, with still lower output in prospect for October, the developments of the past two weeks have indicated that the principal oil producing states can bring about decreases in supply in line with the seasonal requirements in demand.

CRUDE PRODUCTION *3,626,129 barrels daily average—down 52,123 barrels.*

CRUDE STOCKS *309,506,000 barrels as of August 28—down 193,000 barrels.*

GASOLINE STOCKS *66,456,000 barrels as of September 11—down 592,000 barrels.*

REFINERY RUNS *3,455,000 barrels daily average past week—up 10,000 barrels.*

The necessity of correcting local conditions appears to be the immediate problem of the industry. A check made the first of this week shows that there is still excess crude in Oklahoma, Kansas, New Mexico and scattered points in Texas. In Oklahoma and Kansas the survey indicated there is about 30,000 barrels daily of crude which either the producers or crude purchasers would like to sell.

The increase in Illinois production accounts in part for this situation. In one case, an Illinois refinery is now obtaining the bulk of its crude requirements from the new fields of that state despite the fact that its owner has a contract with a large Oklahoma producing company covering the purchase of several thousand barrels daily. This crude is now going to storage in Oklahoma with the buyer unable to resell it to other purchasers. A somewhat similar situation exists in the case of another Middle West refining organization which is obtaining part of its crude requirements from Illinois, reducing its Mid-Continent purchases.

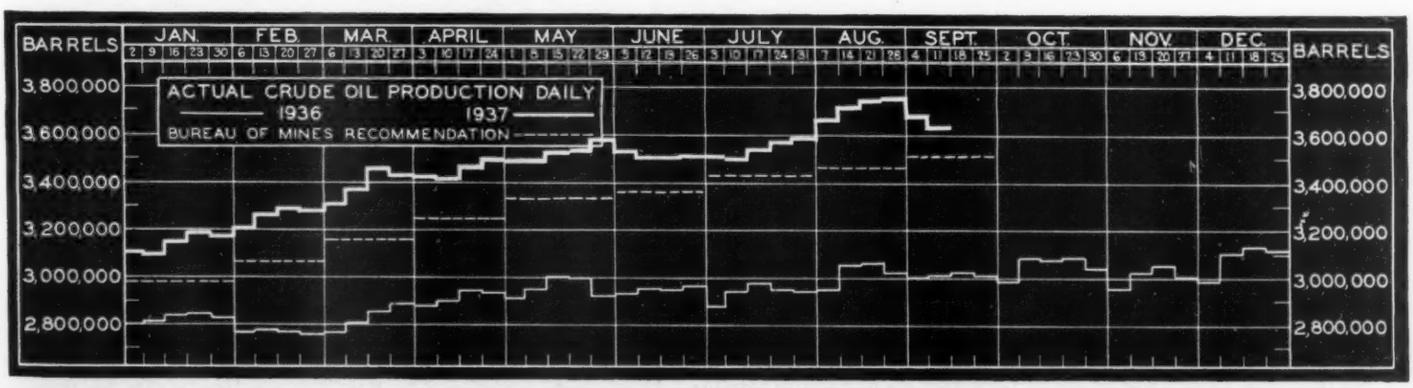
The quantity of crude involved in both these transactions does not exceed 15,000 barrels daily. Ordinarily such a shift in markets absorbing more than 800,000 barrels daily would be of no consequence. At this particular time, it happens to represent most of the difference between supply and demand in Oklahoma and Kansas and for that reason is important. Assuming a continued expansion in Illinois production, a possible development will be a return to a southbound movement of Oklahoma-Kansas crude where it will come in direct competition with Louisiana, Texas and New Mexico supplies. Texas' September allowable was increased 12,336 barrels daily last week to provide additional outlets for Yates and Saxet Texas fields.

The past week brought new production in all larger oil producing states. In most cases the discoveries are new sands or extensions in old producing areas. A deep test in Arkansas may add to the importance of the Schuler area. While prices continue unchanged, the end of the main consuming season finds gasoline markets unsettled in practically all areas. There is an expanding seasonal demand for overhead distillates.

Daily Average Production for Week

	Sept. 11, 1937	Bur. Mines Sept. est.	Sept. State allowables	Sept. 4, 1937
Oklahoma City	148,775	.....	.....	165,590
Fitts	82,900	.....	.....	89,250
Remainder of state	372,825	.....	.....	384,775
Total Oklahoma	604,500	633,600	600,000	639,525
East Texas	477,750	.....	.....	483,127
West Texas	222,900	.....	.....	229,067
North Central Texas	108,150	.....	.....	99,794
Texas Panhandle	70,698	.....	.....	82,424
East Central Texas	119,550	.....	.....	122,386
Gulf Coast—Texas	362,000	.....	.....	368,298
Southwest Texas	120,749	.....	.....	119,567
Total Texas	1,481,797	1,413,600	1,454,070	1,504,653
North Louisiana	86,080	.....	.....	88,930
Gulf Coast—Louisiana	169,850	.....	.....	178,429
Total Louisiana	255,930	247,900	265,495	267,359
California	680,750	638,200	638,200	670,250
Kansas	188,400	200,900	196,250	192,535
Arkansas	36,580	29,900	.....	36,290
Eastern Fields	137,500	124,300	.....	127,500
Michigan	51,790	40,400	.....	47,500
New Mexico	114,320	101,400	114,500	114,530
Rocky Mountain area	74,562	79,100	.....	78,110
Total United States	3,626,129	3,509,300	.....	3,678,252

Decrease, 52,123 bbls. daily.



Gasoline Pipe Lines Serve
of the Total U. S. Motor

Interstate gasoline pipe lines, considered impracticable just ten years ago, now transport from refineries to distribution terminals about 9 per cent of the total motor fuel consumed in the United States. The nine major systems now in operation reach the markets of 23 states. They already serve a territory covering 30 per cent of the entire country. Within that area are located 47 per cent of the nation's population and 50 per cent of its total gasoline consumption. This area is shown in color on the accompanying map.

Thus within the short period of 10 years gasoline pipe lines have become a most important means for moving large quantities of gasoline from the Mid-Continent and East Coast refining centers, to the great marketing states of the middle west and east central portions of the country.

Each day these lines transport from the refineries approximately 130,000 bbls. of gasoline. This quantity would require the capacity of about 700 ordinary tankcars or the equivalent of about 10 train loads.

This quantity of gasoline represents about 19 per cent of the total consumed within the colored area. It is not possible to accurately judge what would be a maximum quantity of pipe line gasoline this area could consume. Allowance must be made for gasoline most economically shipped from the refineries located within the colored area which utilize rail and trucks to make these deliveries. The quantity or percentage shown here does appear high enough however to suggest that it would be difficult to justify the duplication of present systems or even justify adding greatly to their capacity for some distance into the future.

Not All Taken from Rails

Viewing the quantity of gasoline moved by pipe lines it at first appears that the railroads have suffered tremendous losses. What has actually happened, however, is that a large portion of the rail haul has been shifted from refining areas to marketing areas, the railroads in the refining areas losing the originating hauls to the roads in the marketing areas or where the pipe line terminals happened to be located. If the haul from the respective terminal is short the rails come into immediate competition with truck operators. Also, if the terminal happens to be located on a navigable river or lake, the railroad is called upon to compete with barge and tank operators.

In any event, the gasoline pipe systems must generally depend upon some agency to actually deliver the gasoline to the consumer and the railroads still handle a substantial portion of that business.

Purpose of Lines

In laying out the great systems of gasoline pipe lines, the men who proposed them were not only interested in competing with rail charges but they were also trying to provide a means for refiners in the Mid-Continent and Eastern Seaboard to advantageously compete with refiners located within the central states who operated their own crude oil pipe lines.

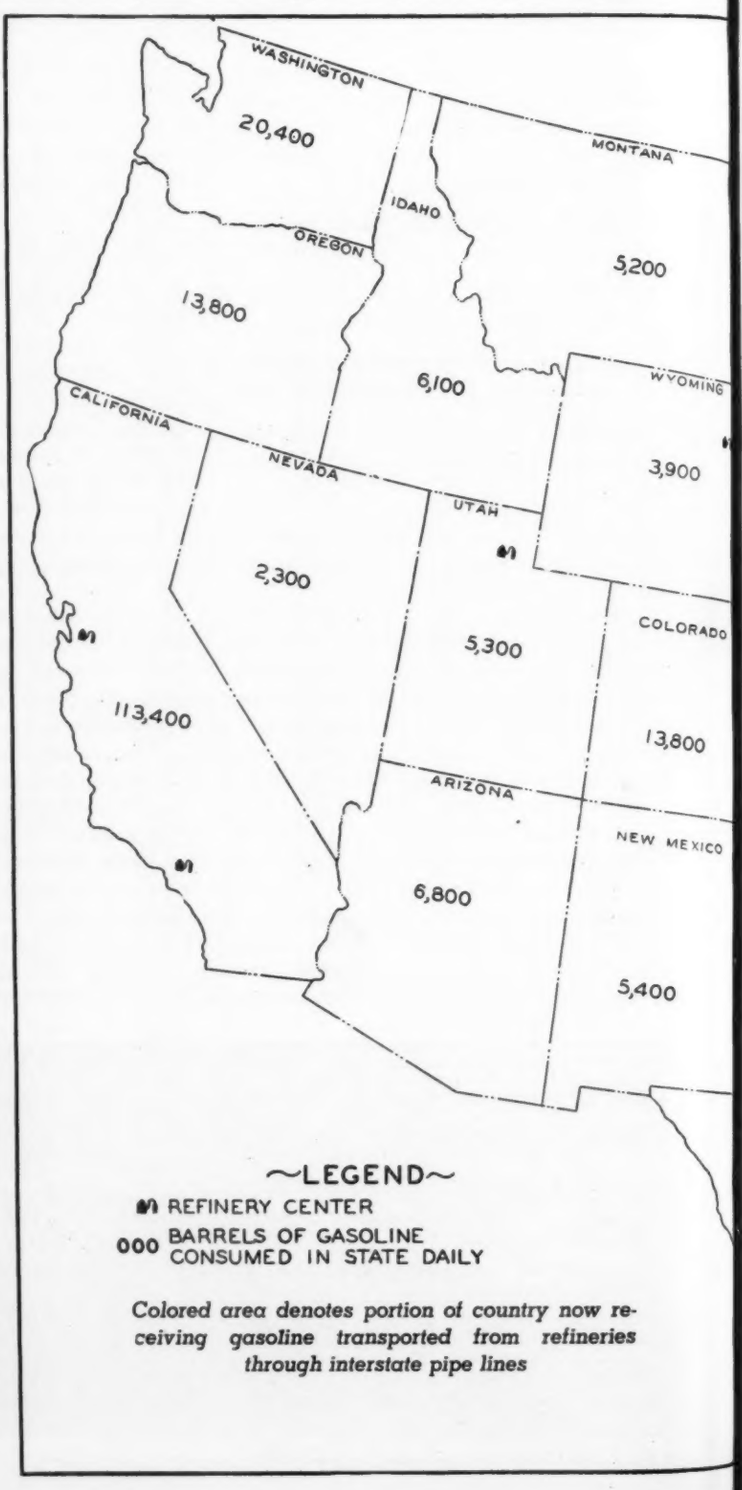
This is especially applicable in the case of the Oklahoma refiner, who, for example, may be competing with a refiner in Chicago for business in Ohio, the Chicago refiner being supplied with Oklahoma crude oil transported through his own pipe line.

Here the relative merits of operating a gasoline line must be weighed against those favoring the crude oil line and looking at the program of building gasoline lines from the standpoint of the competition offered, the situation is not wholly one of refiners versus railroads but refiners versus refiners as well. This becomes more apparent when it is seen that close to 300,000 bbls. of crude are transported out of the Mid-Continent daily by pipe lines which deliver the crude oil to Chicago, St. Louis or western Ohio refinery centers.

Gasoline pipe lines thus act as a most forceful factor in keeping refinery capacity within the oil producing areas and they safeguard the operation of the old established plants along the Eastern Seaboard.

Obvious also is the fact that a delicate balance must be maintained at all times between the pipe lines and rail tariffs. To simplify this relationship gasoline pipe line companies immediately upon operation have applied the same tariffs for delivery as those required by rail. Since this relationship is applied, those refiners who are connected to pipe lines and participate in whatever profits may be available, are anxious to see rail tariffs remain stable and might even favor relatively high rail tariffs. To equalize this are the calls from those refiners who are not participants in the pipe line, to have the rail rates reduced on shipments into what may be called pipe line territory.

Apparantely there is a "middle of the road" course to be followed in meeting both of these requests and already that course appears to have been defined and recognized. Gasoline pipe line systems, in order to operate eco-



Colored area denotes portion of country now receiving gasoline transported from refineries through interstate pipe lines

Area Accounting for Half Fuel Consumption

By W. T. ZIEGENHAIN

nomically must transport relatively large quantities of material over long distances. If this is true, then what of the future?

It immediately becomes apparent that only two large areas remain to be tapped by interstate gasoline pipe lines leading out of existing large refinery centers, namely the Rocky Mountain states and the southeastern states. Each of these presents major barriers to such a move in addition to its relatively low concentration of population.

In the Rocky Mountain area, the investment in lines and pumping stations

Where pipe line and rail meet. Loading racks at the Chicago terminal of the Great Lakes Pipe Line Co. In designing and locating gasoline pipe line terminals provisions must be made so that the actual delivery of the gasoline may be made by tankcar, tank truck or barge

to transport the gasoline over the mountains from the Mid-Continent or California would make the undertaking prohibitive. Because of this one factor, an interstate gasoline pipe line system to serve any major portion of the Rocky Mountain area appears impracticable at present. This will probably remain as the deciding factor for many years despite the shifting of population westward.

An interstate gasoline pipe line system to serve the southeastern group of states seems less remote. This section of the country offers fewer geographic barriers and could be reached by pipe line advantageously from the Gulf Coast or North Louisiana group of refineries. This has been given study in past years by these refiners.

The most serious competition such a line would have to meet would be low cost water transportation. At present large quantities of gasoline are moved along rivers from Gulf and Atlantic ports to the interior markets. The many rivers and the fact they are open at all seasons has greatly favored their use. The practice has already reached such proportions as to make the operation of a long pipe line a comparatively expensive undertaking.

A pipe line extending from the Texas Gulf Coast refinery centers to northern Mississippi, northern Alabama, western Georgia and Tennessee would be approximately 700 miles long. To justify the expenditure necessary to lay such a line would probably require a much greater concentration of business in the area than could be represented by any one refiner on the Texas Gulf Coast or any group the members of which are not already distributing gasoline economically by tanker and barge.

So, while the southeastern group of states offers the best section of the country for a future gasoline pipe line system, its invasion on a large scale will probably also have to wait years, despite the shifting of population southward.

From these brief conclusions it could be assumed that the expansion of gasoline pipe lines is about over. But that would be far from what appears to be happening, for instead of building major interstate gasoline pipe line systems, the trend seems to be definitely in the direction of adding to the capacity and service rendered by existing major lines through extensions to these lines and the laying of many short pipe lines from interior refineries to nearby cities. Oil company executives, particularly those in the marketing and traffic branches, are probably more aware of the practicability of gasoline pipe lines than ever before.

They have been combing every mile of their respective company marketing territories to find more economical means for transporting their products from the point of manufacture to the consumer. The proposed laying of relatively short gasoline lines has usually been an important factor in the study.

In their study they have had to consider, in addition to their own gallonage, that which they might handle as the result of a practice built up in the past three years known as gasoline "swapping."

Obviously, a refiner who supplies not only his own customers in a given area but those of other refiners as well, is in a better position to justify laying a gasoline pipe line from his plant to that marketing area.

Nine Major Systems

At the present time the nine major gasoline pipe line systems referred to previously control about 4,900 miles of lines varying in size from 4-inch to 8-inch. The largest of the group is the Great Lakes Pipe Line Co., which operates 1,518 miles of trunk lines leading from refineries located in and around Tulsa, Okla., to terminals in Kansas City, Des Moines, Council Bluffs, Minneapolis and Chicago. Participating in this line are the Continental Oil Co., Barnsdall Corp., Mid-Continent Petroleum Corp., Skelly Oil Co., Pure Oil Co., Phillips Petroleum Co., Sinclair Refining Co. and the Texas Co. At the present time this company is looping sections of its system.

The second great gasoline pipe line system serving the Mid-Continent area is that of the Phillips Petroleum Co., operating as the Phillips Pipe Line Co., which covers 736 miles stretching from the parent company's refinery near Borger, Tex., to East St. Louis, Mo. Physical connection is made at Kansas City, where the company operates another large refinery. This line has been used to transport light oils other than motor fuel and its success in transporting products of dissimilar quality simultaneously, such as butane, natural gasoline and refinery gasoline, has made it a feature of the pipe line industry.

In the more recent years two relatively short lines have been laid in the Mid-Continent area; that of the Cimarron Pipe Line Co., a subsidiary of the Champlin Refining Co. and that of the Socony-Vacuum Oil Co. (White Eagle division). The former reaches from the Champlin refinery at Enid, Okla., to Superior, Neb., while the White Eagle line reaches from the company's refinery at Augusta, Kans., to a point on the Missouri River near Kansas City.

Among the large gasoline pipe line systems leading out from the large refineries along the East Coast are those of the Keystone Pipe Line Co., a subsidiary of the Atlantic Refining Co.; that of the Susquehanna Pipe Line Co., a subsidiary of the Sun Oil Co., and the Tuscarora Oil Co., Ltd., a subsidiary of the Standard Oil Co. (New Jersey).

In this group of gasoline lines serving the East Coast should be included that of the Socony-Vacuum Oil Co. (Eastern Division), which operates a relatively short line extending from the company's refinery at Providence, R. I., northward and westward into Massachusetts.

The only line in operation within the central states is that of the Detroit Southern Pipe Line Co., which connects refineries located in the Toledo area with Detroit. Refining companies using this line include the Sun, Pure and Gulf.

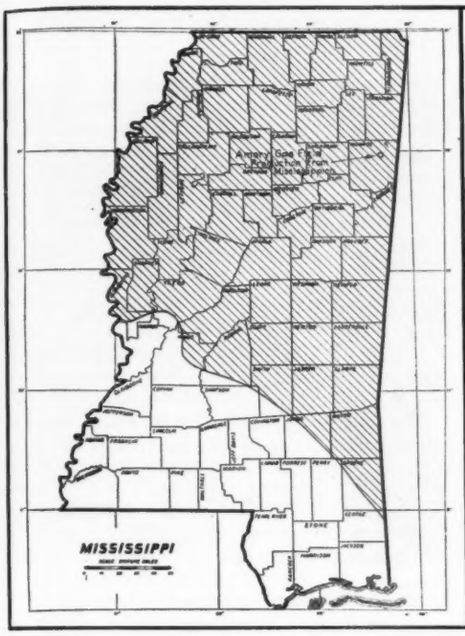
In recent weeks three more lines have been proposed for the central states. These will be relatively short also and will lead out from refineries located within the area of large neighboring cities.

The largest project to be announced is that of the Shell Oil Co., which has been purchasing right of way for a gasoline line to connect its refinery at Wood River, Ill., with Indianapolis, and possibly this line will be extended into Columbus, Ohio, and Cleveland. The other lines proposed are those to be built by the Standard Oil Co. of Ohio. One line, to be 67 miles in length, will connect the company's refinery at Cleveland with Akron and Canton, and the second line, to be approximately 38 miles long, will be laid between the company's Toledo refinery and Fostoria, Ohio.

In the above list are only those which transport finished motor fuels from the refineries directly to markets, but there are many other light oil lines which might be classified as gasoline lines.

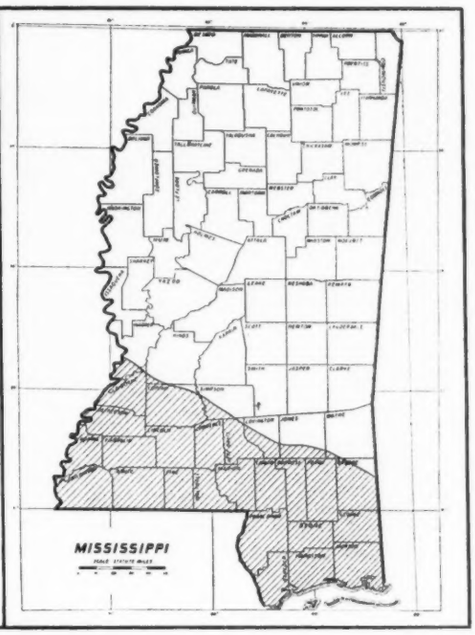
Turn to Page 88

for additional editorial material of this Annual Pipe Line Number. There will be found the beginning of a special section which includes pipe line engineering and descriptive articles, statistics, maps, pictures, personalities behind the pipe lines, and personnel and company surveys.



Shaded area—approximately where Paleozic is within reach of drill and could produce

Shaded area—approximately where Eocene is within reach of drill and could produce



Shaded area—where Oligocene and Miocene are within reach and could produce

Mississippi Oil and Gas Development

By HENRY N. TOLER
Mississippi State Oil and Gas Supervisor

The first test well for oil and gas in Mississippi was drilled in Clarke County to a depth of 1,842 feet in 1903. Since this well was drilled 228 wildcat wells have been drilled in the state. As a result two gas fields have been discovered, numerous showings of oil and gas reported, and structures confirmed or discovered. (See Table 1.)

It will be noted that most of these wells were drilled only to shallow depths, there being but 23 wells drilled below 5,000 feet. The great majority of these wells were located and drilled without the use of scientific information and could hardly be considered adequate tests. The deepest well drilled in the state is the Covington County Oil Co. No. 1 Bank of Seminary, which was drilled in Covington County to a depth of 8,002 feet and abandoned in the Eutaw formation as a dry hole.

Some of the more interesting and important wells drilled are the following:

Alabama-Mississippi Investment & Development Co. No. 1, section 19-4n-15e, Clarke County. Total depth, 1,842 feet. Drilled in 1903 as the first well to be drilled for oil or gas in the state of Mississippi.

Amory Petroleum Co. No. 1 Carter, section 7-13s-17w, Monroe County. Total depth, 2,412 feet. Completed in October, 1926, as the discovery well of the Amory gas field and the first well to be completed in the state. Production is from Hartselle sand of Mississippian age.

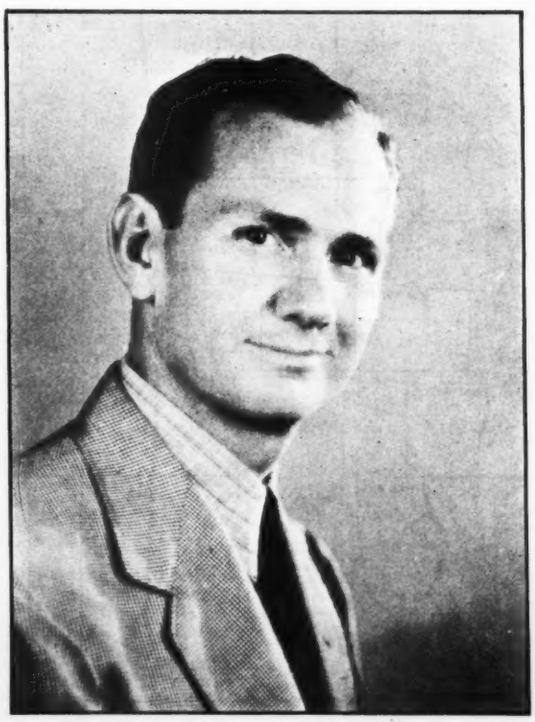
Amory Petroleum Corp. No. 1 Hall, section 8-13s-17w, Monroe County. Total depth, 3,064 feet. Had considerable oil at 2,400 feet in a sand of Mississippian age, probably same as gas producing zone of the Amory field.

Jackson Oil & Gas Co. No. 1 Mayes, section 2-5n-1e, Hinds County. Total depth, 2,468 feet. Completed February 28, 1930, as the discovery well of the Jackson gas field with production coming from the top of the Selma chalk, upper Cretaceous age.

Covington County Oil Co. No. 1 Bank of Seminary, section 26-8n-15w, Covington County. Total depth, 8,002 feet. The deepest well drilled in Mississippi, had showing of oil in Wilcox from 4,722-30 feet.

Gulf Refining Co. of Louisiana No. 1 Rainey, section 13-5n-1e, Rankin County. Total depth, 3,607 feet. At 2,500 feet, well flowed some gas, heavy oil and salt water. This was the first well in Jackson field and Mississippi to flow some oil. Also first well to encounter igneous rock on Jackson structure. Igneous rock was encountered at 2,971 feet and well was still in igneous at 3,607 feet.

Gulf Refining Co. of Louisiana No. 1 Long Bell Lumber Co., section 10-2n-16e, Clarke County. Total depth, 4,775 feet in Tuscaloosa. Some oil on



The Author

Henry N. Toler, state oil and gas supervisor of Mississippi, and a member of the Mississippi State Oil and Gas Board, the regulatory body of that state. Mr. Toler is a native Mississippian; received his B.S. in geology from Louisiana State University in 1925 and his M.S. degree in geology from the University of Illinois in 1929. Outside of his extensive studies of oil and gas geology in Mississippi, he has gained similar experiences in Kentucky, Illinois, Colorado, Texas, Louisiana, Alabama and in South America.

test of Eutaw sand at 3,692-3,700 feet. Probably would have made a few barrels of oil per day, but was not a commercial well.

Henslee & Tanner No. 1 Warner, section 14-5n-1e, Rankin County. Total depth, 2,490 feet. Came in August, 1932, flowing 14-gravity oil at the rate of 500 bbls. per day. Later started making salt water. Well now capable of making about 10 bbls. of oil per day. Production from top of Selma chalk.

Natural Gas & Fuels Corp. No. 1 Rye, section 22-15s-17w, Monroe County. Well made approximately 5,000,000 feet of gas per day at 2,700 feet, probably from Pennsylvanian formation. Well drilled to 3,710 feet where it was abandoned as dry.

United Gas Public Service Co. No. 1 Lenhart, section 14-14n-6w, Sharkey County. Total depth, 3,807 feet in igneous rock. Had a showing of oil in Cretaceous around 3,600-3,700 feet.

Paco and Wanete Oil Co. (E. B. Germany) No. 1 J. J. Newman Lumber Co., section 21-4n-15w, Lamar County. Total depth, 3,520 feet in Wilcox. Well was several hundred feet high structurally and led to the discovery of Mississippi's first salt dome.

Sun Oil Co. No. 1 Scanlan and Semmes, section 28-4n-15w, Lamar County. Total depth, 4,024 feet in salt which was encountered at 2,522 feet. First well to discover salt dome in Mississippi.

Sun Oil Co. No. 2 Talley, section 28-4n-15w, Lamar County. Total depth, 3,034 feet in anhydrite. Cap rock containing lots of asphalt encountered at 2,692 feet and continued to 2,975 feet where anhydrite was encountered.

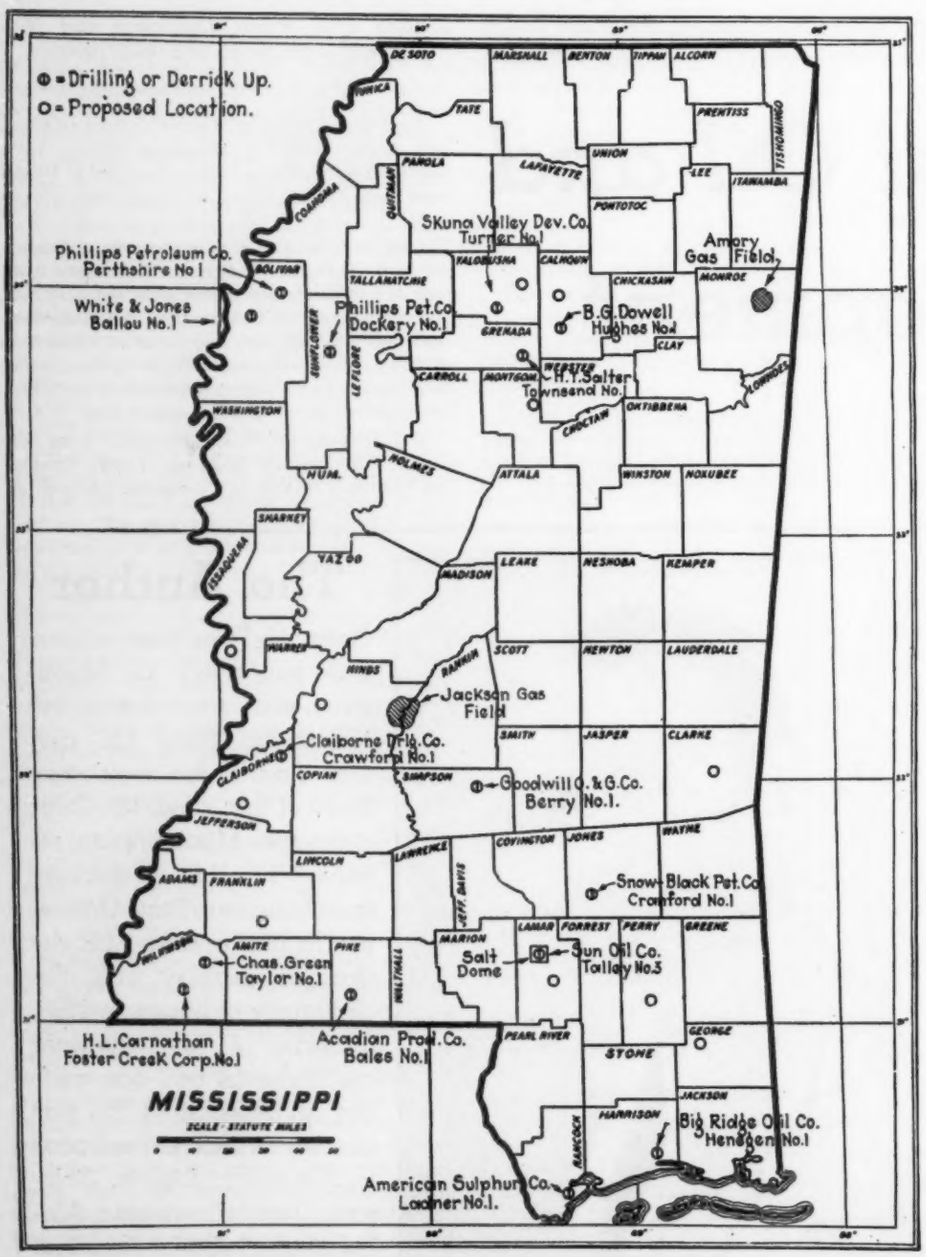
United Gas Public Service Co. No. 1 Williams Unit, section 6-1s-5w, George County. Total depth, 6,928 feet, probably in Tuscaloosa. Regionally high on top of Cretaceous.

United Gas Public Service Co. No. 1 M. L. Davis, section 30-1n-5w, Greene County. Total depth, 7,439 feet, probably in Tuscaloosa. Regionally high on top of Cretaceous.

Gulf Refining Co. of Louisiana No. 6 L. N. Dantzler Lumber Co., section 22-4s-11w, Stone County. Total depth, 7,581 feet in Eutaw. Regionally high on top of Cretaceous.

Gulf Refining Co. of Louisiana No. 7 L. N. Dantzler Lumber Co., section 36-3s-11w, Stone County. Total depth, 7,443 feet in Eutaw. Regionally high on top of Cretaceous.

Kirby Petroleum Co. No. 1 W. A. Lanehart, section 22-1n-2w, Wilkinson County. Total depth, 5,509


⊕ = Drilling or Derrick Up.
○ = Proposed Location.
Phillips Petroleum Co. Perthshire No 1
White & Jones Ballou No.1
Phillips Pet.Co Dockery No.1
Skuna Valley Dev.Co. Turner No.1
Amory Gas Field
B.G.Dowell Hughes No.1
H.T.Salter Townsend No.1
Jackson Gas Field
Claiborne Drlg.Co. Crawford No.1
Goodwill O.& G.Co. Berry No.1.
Snow-Black Pet.Co Cranford No.1
Chas.Green Taylor No.1
Salt Dome
Sun Oil Co. Talley No.3
H.L.Carnathan Foster Creek Corp.No.1
Acadian Prod.Co. Bales No.1
Big Ridge Oil Co. Henagen No.1
American Sulphur Co. Lackner No.1.
MISSISSIPPI
SCALE - STATUTE MILES

Wells drilling or derricks up and proposed locations

TABLE 1

These wells are classified as to depth drilled as follows:

103	wells never reached a depth of 3,000 feet.
73	wells reached a depth of 3,000 to 4,000 feet.
29	wells reached a depth of 4,000 to 5,000 feet.
17	wells reached a depth of 5,000 to 6,000 feet.
2	wells reached a depth of 6,000 to 7,000 feet.
4	wells reached a depth of 7,000 to 8,002 feet.

The 228 wells were drilled by years as follows:

1903	1	1921	11	1930	12
1905	1	1922	8	1931	18
1911	3	1923	3	1932	11
1913	1	1924	3	1933	31
1914	2	1925	5	1934	23
1915	2	1926	10	1935	14
1916	1	1927	17	1936	13
1917	3	1928	4	*1937	7
1920	9	1929	15	*To date.	

The wells were drilled by counties as follows:

Adams	2	Lincoln	1
Alcorn	1	Lowndes	3
Amite	2	Madison	8
Attala	2	Marion	1
Bolivar	1	Marshall	3
Chickasaw	3	Monroe	15
Claiborne	2	Montgomery	1
Clarke	8	Neshoba	1
Clay	1	Newton	2
Copiah	5	Noxubee	1
Covington	7	Panola	2
Forrest	1	Pearl River	6
Franklin	3	Perry	3
George	6	Pike	2
Greene	2	Rankin	9
Grenada	4	Scott	2
Hancock	1	Sharkey	2
Harrison	3	Simpson	3
Hinds	*9	Smith	2
Holmes	1	Stone	7
Humphreys	1	Sunflower	4
Issaquena	3	Tallahatchie	5
Jackson	12	Tishomingo	2
Jasper	3	Union	1
Jefferson	3	Warren	14
Jefferson Davis	1	Washington	4
Jones	4	Wayne	1
Lafayette	1	Webster	1
Lamar	7	Wilkinson	6
Lauderdale	6	Winston	3
Leake	1	Yalobusha	3
Lee	2	Yazoo	2

*Exclusive of wells in Jackson gas field.

feet in Claiborne. Cored a sand carrying some oil from 4,572-79 feet in lower Catahoula.

Charles Green and others No. 1 Foster Creek Lumber Co., section 8-3n-1e, Wilkinson County. Total depth, 5,033 feet in Claiborne. Cored a sand from 3,868-71 feet carrying some oil — show in Cockfield formation.

Fred E. Courson No. 1 J. J. Newman Lumber Co., section 26-1n-9w, Perry County. Total depth, 3,026 feet. Well abandoned in the Wilcox, checking approximately 300 feet high structurally.

Cleve Love and others No. 1 Thomas, section 10-4n-1e, Rankin County. Total depth, 5,465 feet in Tuscaloosa. From 4,200 to about 4,700 feet had black shale which is generally considered Eutaw, but considered, possibly, to be Eagle Ford by some: 4,770-76 feet, cored sand carrying some oil and salt water.

Dixie Petroleum Co. No. 1 Clarke, section 6-16n-5e, Warren County. Total depth, 3,092 feet. Cored sand carrying some oil from 2,232-38 feet. Showing of oil in Sparta sand.

W. L. Stewart and others No. 1 Wood, section 19-22n-5e, Grenada County. Total depth, 4,600 feet in Paleozoic rock.

Preston Oil Co. No. 1 McLean, section 15-19n-6e, Montgomery County. Total depth, 4,260 feet in Upper or Lower Cretaceous.

Mississippi Drilling Co. No. 1 Scarborough, section 15-13n-14e, Winston County. Total depth, 3,800 feet in Upper or Lower Cretaceous.

These last three wells are listed as important because, at present, it seems quite likely they penetrated some Lower Cretaceous. There were a number of other wells which reported oil shows and many wells with showings of gas.

Present Activity

There has been a marked increase in geophysical work in Mississippi during the past few months, there having been as many as 25 parties working in the state at one time. The geophysical parties include seismograph, torsion balance and gravitimeter. This work has been pretty well scat-

tered over the entire state with the greater amount of work being done in South Mississippi. There has also been some surface geological work done.

The leasing of land for oil and gas has kept pace with the geological and geophysical work. After many of the areas were worked, the companies went in and leased solid blocks of acreage, thus probably indicating that structural conditions had been found. Thousands of acres have been leased in the past several months over the whole state, but leasing, like the exploration work, has been heavier in South Mississippi. There are approximately 4,000,000 acres under lease.

Most of the recent leasing and exploration work has been done in the following counties: Greene, George, Wayne, Stone, Perry, Forrest, Jones, Pearl River, Lamar, Covington, Marion, Jefferson Davis, Lawrence, Lincoln, Copiah, Hinds, Madison, Pike, Amite, Wilkinson, Franklin, Jefferson and Claiborne in South Mississippi. In West and North Mississippi the following counties have seen more activity: Holmes, Humphreys, Sunflower, Washington, Bolivar, Tallahatchie, Grenada, Montgomery, Calhoun, Yalobusha and Lafayette.

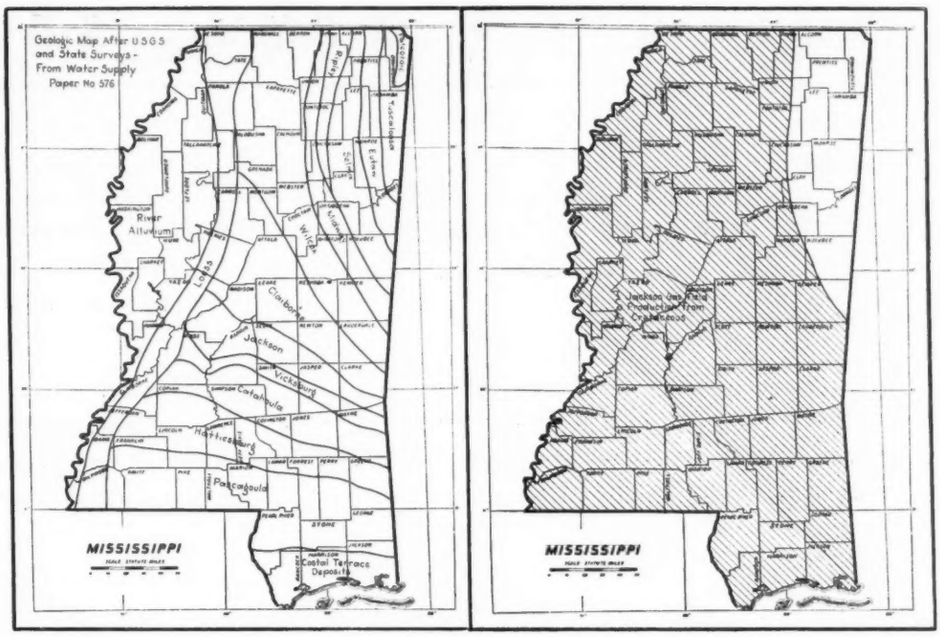
Within the past few months the State Mineral Lease Commission, which handles the leasing of all state-owned lands, has had several inquiries from companies wishing to lease some 500,000 acres or more of state-owned water bottoms along the coast. No action has been taken yet.

The following companies are active in the state, doing exploration work and leasing and having men in the area: Sun Oil Co., Gulf Refining Co., Texas Co., United Gas Public Service Co., Phillips Petroleum Co., California Co., Tide Water Associated Oil Co., Shell Petroleum Corp., Southern Natural Gas Co., Cities Service Oil Co., Magnolia Petroleum Co., Stanolind Oil & Gas Co., Humble Oil & Refining Co., Kirby Petroleum Co., Ohio Oil Co., Danciger Oil & Refining Co., Louisiana Crusader Oil, Inc., Continental Oil Co., Amerada Petroleum Corp., Sinclair Prairie Oil Co., Arkansas Natural Gas Corp., Superior Oil Co. In addition to these major companies, there are also several small companies and independent operators who are active in leasing and drilling.

Wells are being drilled at present in the following counties: Bolivar County, Phillips Petroleum Co. No. 1 Perthshire, drilling at 5,600 feet and White & Jones No. 1 Ballou, shut down at 1,782 feet; Sunflower County, Phillips Petroleum Co. No. 1 Dockery, derrick up; Calhoun County, B. G. Dowell No. 1 Hughes, drilling at 811 feet; Yalobusha County, Skuna Valley Development Co. No. 1 Turner, drilling at 900 feet; Claiborne County, Claiborne Oil & Gas Drilling Co. No. 1 Crawford, shut down at 2,200 feet; Lamar County, Sun Oil Co. No. 3 Talley, drilling at 6,294 feet; Hancock County, American Sulfur Co. No. 1 Ladner, shut down at 2,015 feet; Harrison County, Big Ridge Oil Co., No. 1 Hengen, set casing at 2,332 feet; Jones County, Snow-Black Petroleum Co. No. 1 Cranford, shut down at 4,000 feet; Simpson County, Goodwill Oil & Gas Co. No. 1 Berry, rigging up; Pike County, Acadian Production Corp. No. 1 Bales, derrick up; Wilkinson County, H. G. Carnahan and others No. 1 Foster Creek Corp., drilling at 4,219 feet, and Charles Green and others No. 1 Julian Taylor, drilling at 2,008 feet; and Grenada County, H. T. Salter No. 1 Carpenter, derrick up.

There are reliable reports that wells are to be started soon in the following counties: Calhoun, one well; Yalobusha, two wells; Clarke, one well; Montgomery, one well; Claiborne, one well; Hinds, one well; Lamar, one well; Perry, one well; George, one well; and Franklin, one well.

Some of the wells now drilling and some of those to be drilled are to be deep tests, located on structures, and they will be watched with great interest.



Geologic map of Mississippi and map with shaded area indicating approximately where Cretaceous is within reach of drill and could produce

Geology

The formations outcropping at the surface in Mississippi range in age from Devonian to recent. The dip of the surface beds is normally from 20 to 30 feet per mile to the west and southwest, consequently the beds get progressively younger going southwest from the northeast corner of the state where Paleozoic rocks are exposed. All surface formations in the state are sedimentary. Igneous rocks have been found in three locations in wells drilled. An igneous plug is found at Jackson at about 2,950 feet deep on top of the structure. Igneous rocks were found in two wells in Sharkey County, being encountered at 3,400 feet and 3,700 feet.

It is possible to do surface geology over a fairly large part of the state. The Paleozoic, Cretaceous, Midway, Claiborne, Jackson and Vicksburg formations can be worked rather reliably. It is very difficult to do accurate and definite surface work in the Wilcox belt and South Mississippi due to the character of the formations and the mantle covering of the younger beds in some places. The Mississippi River delta area is, of course, impossible to work from the surface as it is all covered with the river alluvium.

The geological table presented herewith gives in a generalized way the thicknesses and the characters of the various formations exposed at the surface and penetrated in wells. With very few exceptions, the formations thicken down-dip and in most wells drilled, the formations will be thicker than at the surface.

For a detailed description of the various formations, see the U. S. Geological Survey's Water Supply Paper 576 and various publications of the Mississippi State Geological Survey.

Subsurface

Formations ranging from Ordovician to Miocene are within reach of the drill. These formations are productive in other states and should be productive in Mississippi. In North and Northeast Mississippi the Paleozoic formations are within easy reach of the drill. In Central Mississippi, particularly on structure, the Paleozoic could probably be reached. The Cretaceous in West, North Central,

(Continued on Page 276)

GEOLOGICAL TABLE

System	Series	Formation group	Thickness (feet)	Character—
Quaternary	Recent	.....	0- 200	Alluvial material.
	Pleistocene	.....	0- 150	Sands, clays, gravel and Loess.
Tertiary	Pliocene	Citronelle	0- 150	Sands, clays and gravel.
	Miocene	Pascagoula, Hattiesburg, Catahoula	Up to 5,000	Sand, clay and sandy clay. Mostly nonmarine. A few marine beds, some chalk and lime in lower part.
	Oligocene	Vicksburg	100- 200	Marl, shale, sand and limestone. Marine.
	Eocene	Jackson	200- 600	Lime, clay and marl. Marine.
		Claiborne	500-2,300	Sand, shales, lime and marl. Marine and nonmarine, alternating.
		Wilcox	1,000-3,000	Sand, shale, lignite, boulders. Mostly nonmarine. Some marine beds.
		Midway	200-1,000	Black shale, boulders and lime at base. Marine.
Cretaceous	Upper	Ripley	100- 300	Marl, sand, shale. Marine and nonmarine.
		Selma	500-1,200	Chalk and lime.
		Eutaw	300- 500	Sand, shale. Marine and nonmarine.
		Tuscaloosa	500-1,000?	Red and gray shales and sand. Some gravel.
	Lower	Trinity	2,500+ at Jackson	Red and gray shales and sandstones.
Pennsylvanian, Mississippian, Devonian, Silurian, Ordovician				Mississippian and Devonian outcrop at the surface. The other Paleozoic formations have been found in wells. There is a possibility that Permian may be present. These beds consist of sandstones, shales, chert and limestones. No attempt is made here to subdivide these formations or give thicknesses as the subsurface information is rather limited.

SPARKS FROM THE NEWS

REVIVAL

When it looked like an overdue summer decline in drilling activity had caught up with southeastern New Mexico fields, the district was given new life with an estimated 20,000-barrel well in the Eunice area.

NEXT!

Texas County, hailed as the future carbon black and gas area of Oklahoma, seems due for a big oil and gas play as a result of an extensive leasing campaign.

EXAMPLE

Latest report of the Texas Railroad Commission covering the Panhandle area shows what can be done along conservation lines through cooperation of state officials and operators.

CO-BY

Some think that East Texas, the oil industry's greatest field, received its first slap last week. An important producing company sold its properties and will use the proceeds to drill in other areas which are expected to prove more profitable.

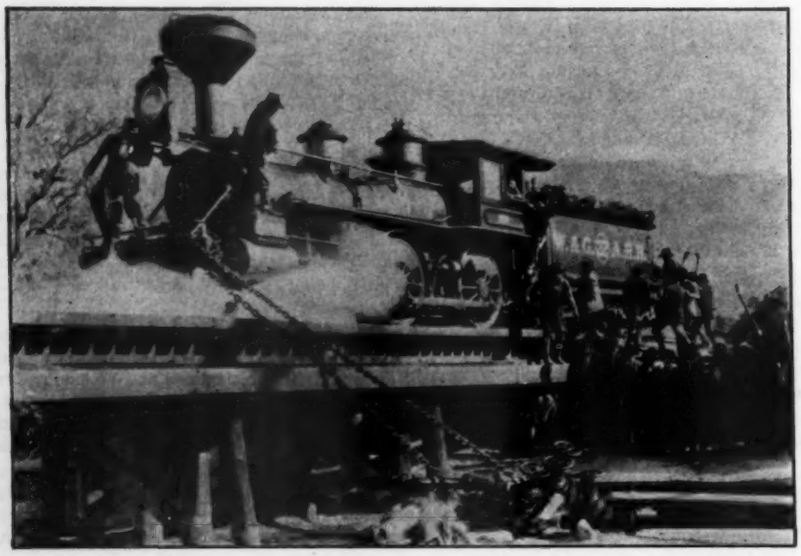
PLEASANT

Natural gasoline manufacturers in the Mid-Continent report difficulty in meeting demand. It's a novel experience for them, and one they appear to envy.

RESTRAINT

A test in Evageline Parish of Coastal Louisiana promises to open a deep pay for development. The fact that the pay is found at 9,000 feet assures orderly development.

PIPE LINE PIONEERING



An ancient locomotive is used to rip up an early pipe line during the freight rate war in the new film "High, Wide and Handsome"

POTENTIAL

Geologically, Mississippi appears to be within the oil area. The wildcatting program for the next year should bring definite results —good or bad.

UNCOVERED

Sulfureous fumes of a wildcat discovery in southern Oklahoma are said to be removing the paint from buildings over a wide area. Dry holes in the same section have in the past removed the shirts of some of the owners.

PROGRESS

The Oil-World Exposition at Houston promises to be a clearing-house for technical and practical developments in the oil industry over the past year.

LOW BRIDGE

A railroad company brings in the largest well yet completed in the Wilmington field, the principal cause of California's threat of excess production in recent months.

OFFSET

The fact that at least three major fields in the Mid-Continent cannot maintain their present production without sacrificing ultimate recoveries, merits consideration in the present crude situation. Unfortunately, there are many smaller pools which can easily overproduce.

FOOTED-UP

The statement that pipe lines, if placed end to end, would extend 8 times around the world will not be surprising to a pipe line walker, who feels that he travels the entire distance at least once a year.

DETOUR

An additional reason for gasoline pipe lines was given this week. One of the objectives in laying two short lines in Ohio is to aid in relieving traffic congestion in thickly populated centers.

Steady Expansion in Coastal Refinery Construction

By GEORGE WEBER

HOUSTON, Tex., Sept. 13.—A prolonged construction program among Gulf Coast refiners continues to widen the scope of the industry in that area and has greatly strengthened its position.

Construction of new refineries and expansion of existing plants have added to the crude processing capacity of the coastal belt, and have kept local refining methods abreast of the latest technical developments. The present large scale activity is attributed to a general policy among some of the major companies to increase the centralization of their plants along the tidewater ports. In addition, refiners are still installing modern processing units to compensate for the lag in construction during the depression, and to provide the needed facilities for producing the current record demand in gasoline, burning oils and other refined products.

Upon completion of the several construction projects now under way in this area, the total crude capacity of the Gulf Coast will approach 1,000,000 bbls. per day. In terms of capacity, this figure represents a little more than 23 per cent of the total in the United States. In a more pertinent aspect, however, that of actual crude runs, the figure goes beyond 28 per cent. The absence of idle equipment and shutdown plants along this belt, due to the centralization of activity in large efficient refineries, makes the total daily crude run to stills very nearly 100 per cent of the refining capacity.

Diversified Improvements

Gulf Coast refiners are not only adding to crude processing and cracking facilities. The latest developments in polymerization, lubricating oil finishing, treating and manufacture of chemical derivatives find application in the several large plants. Much work of a general nature, concerned with modernization and addition to auxiliary facilities is keeping pace with the actual construction of processing equipment. In some cases the new construction is designed to replace outmoded and depreciated equipment, rather than to materially increase the capacity of the refineries. This move, while it does not add to actual crude processing capacity, does, however, provide for modern methods of selective cracking, whereby the yield of premium refined products is substantially augmented.

The progress in Gulf Coast refining is clearly illustrated in the accompanying table showing water shipments from the ports of Houston and Texas City during the first half of 1937. Gains in nearly all divisions were recorded over shipments for a like period of 1936. The total increase in volume of crude and refined products shipped over the six-month period of 1936 is 21.7 per cent. Development of the refining industry is more graphically shown by a gain of 26 per cent in finished products, while crude shipments alone swelled 11 per cent.

Greatest gains were made in gasoline and burning oils, reflecting the currently strong market in those lines. Export shipments of burning oils in some cases declined, as more and more of the product found its way to the eastern seaboard to care for the rapidly developing market for domestic heating oils.

The picture representing the Houston-Texas City area is essentially representative of the entire Gulf Coast from the Mississippi River to Corpus Christi. The 32 operating plants of the area in March of this year totaled 901,100 bbls. per day capacity. Projects completed since that time and now under way account for a capacity of 127,000 bbls. more. In addition, three new polymerization plants are in operation, having been placed on stream since the first of the year, and two more are contracted. Lubricating oil treating has been modernized by addition of several solvent units in the large refineries, and a unit for the manufacture of iso-octane is being constructed to make a total of two such plants in the Gulf Coast.

The greatest construction activity until recently has been centered in the Houston and Texas City district. Shell Petroleum Corp. has now completed a widespread modernization program at the Houston refinery. Included in the project was the addition of a combination unit, capable of handling 16,000 bbls. of crude, with a cracking capacity of 11,000 bbls. and a reforming capacity of 5,000 bbls. A stabilization unit was added in connection with the combination unit. Arthur G. McKee & Co. held contracts for the construction work.

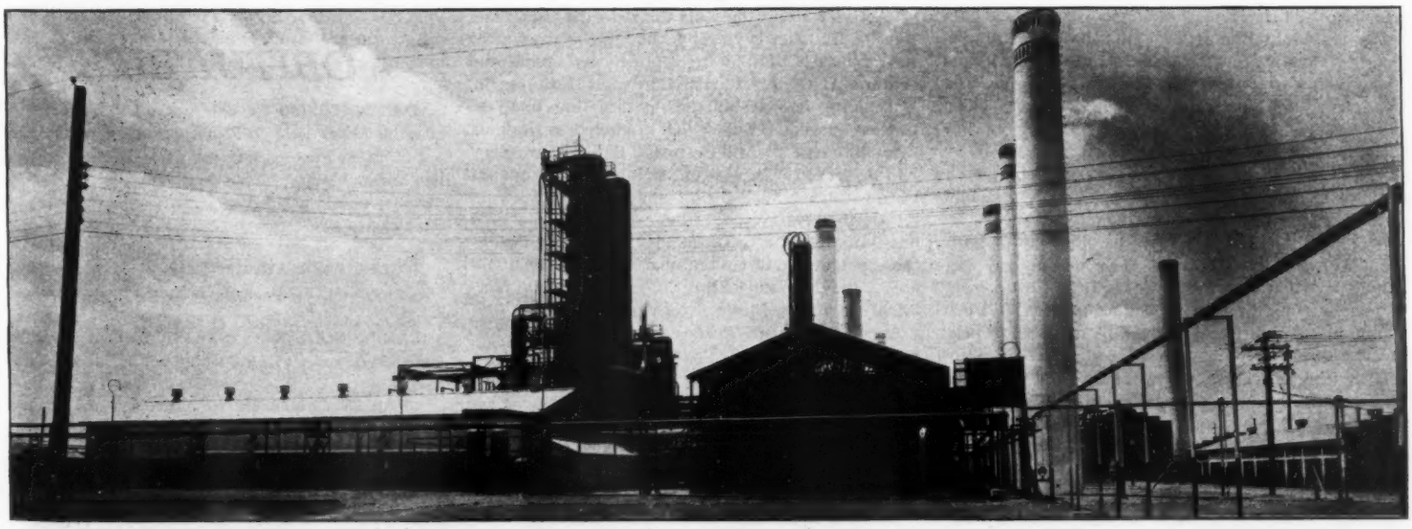
A new power plant was installed to provide for the added steam and electrical demand of the rapidly expanding refinery. The plant comprised two new open-type Vogt boilers powering two 2,500-kwh Westinghouse generators. Also constructed were a new dock, an addition to the office building, 1,900,000 bbls. of storage, a caustic regeneration plant and numerous general improvements.

Pan American Expands

Having completed No. 2 unit at the first of the year, Pan American Refining Corp. at Texas City has contracted with the M. W. Kellogg Co. for a third combination skimming and cracking unit now under construction at the plant. The new plant has a capacity of 18,000 bbls. daily and will be used primarily for the processing of heavy crude for recovery of fuel oil, furnace oil and gasoline.

At the same plant, the largest polymerization unit yet built has been operating since the first of the year. It employs the catalytic method of polymerization, licensed under the Universal Oil Products Co.

The second polymerization plant in the Houston district was added to the Baytown refinery of Humble Oil & Refining Co. It is incorporated in the new Humble project which provides for the manufacture of high vapor pressure natural gasoline con-



New 15,000-bbl. combination crude distillation and cracking unit recently placed on stream at Smiths Bluff, Tex., refinery of Pure Oil Co.

GULF COAST TANKER SHIPMENTS—HOUSTON - TEXAS CITY DISTRICT

Houston

Coastwise, Atlantic ports:	January	February	March	April	May	June	First 6 months 1937	First 6 months 1936
Crude	2,292,718	1,777,734	2,321,685	1,748,612	2,128,413	2,371,476	12,640,638	11,471,130
Gasoline	2,699,325	2,356,625	2,215,879	3,142,064	2,817,649	3,022,484	16,254,026	14,540,962
Naphtha	146,937	.....	11,964	126,831	185,296	260,155	731,183	633,449
Kerosene	957,091	792,548	542,986	325,774	301,235	152,047	3,071,681	2,964,108
Fuel oil	2,013,937	2,283,290	1,739,872	1,967,942	1,229,349	1,452,270	10,686,660	9,812,103
Lube oil	46,053	171,203	137,071	64,275	64,348	80,919	653,869	372,081
Bunker fuel	312,555	262,733	262,816	312,816	226,491	269,032	1,646,443	1,610,543
Other	5,131	3,581	6,018	9,537	2,614	6,096	32,977	35,542
Total	8,473,747	7,647,714	7,238,291	7,697,851	6,955,395	7,614,479	45,627,477	41,439,918
Export:								
Crude	105,521	239,557	.....	355,962	1,029,539	491,210	2,221,789	1,983,619
Gasoline	725,256	475,145	653,830	678,225	549,287	1,233,414	4,315,157	2,452,969
Kerosene	32,739	4,354	32,071	121,164	23,649	107,185	321,162	275,433
Fuel oil	400,766	186,729	389,776	641,625	668,832	502,494	2,790,222	3,022,227
Lube oil	183,798	119,483	83,233	153,884	160,417	183,036	883,851	655,962
Bunker fuel	208,370	175,156	175,210	185,343	152,065	188,227	1,084,371	1,073,695
Other	1,045	.....	600	482	.....	24	2,151	4,507
Total	1,657,495	1,200,424	1,334,720	2,136,685	2,583,789	2,705,590	11,618,703	9,468,412

Texas City

Coastwise, Atlantic ports:								
Crude	748,925	780,464	903,994	777,216	802,838	1,312,448	5,325,885	4,608,631
Furnace oil	388,705	256,977	168,642	102,242	241,504	256,278	1,414,348	900,817
Fuel oil	306,934	533,366	436,932	575,248	527,957	614,461	2,994,898	1,161,532
Lube oil	3,811	.....	.....	.....	4,170	4,875	12,856	34,453
Gasoline	401,336	589,733	1,332,045	1,165,910	1,371,038	1,247,664	6,107,726	2,727,552
Kerosene	61,984	34,020	22,868	98,310	23,202	21,702	262,086	375,806
Total	1,911,695	2,194,560	2,864,481	2,718,926	2,970,709	3,457,428	16,117,799	9,808,791
Export:								
Crude	97,690	.....	70,167	.....	.....	.....	167,857	164,044
Furnace oil	.....	.....	.....	.....	46,507	11,799	58,306	.....
Gasoline	43,599	267,645	97,451	8,412	77,670	.....	494,777	.....
Fuel oil	.....	54,588	.....	117,071	.....	156,036	327,695	239,963
Total	141,289	322,233	167,618	125,483	124,177	167,835	1,048,635	404,007
Grand total	12,184,226	11,364,931	11,605,110	12,678,945	12,634,070	13,945,332	74,412,614	61,121,128

taining butanes and propane in the East Texas and Gulf Coast fields, its transportation to Baytown, stabilization of the natural gasoline and the polymerization of the light products.

Now under construction at Baytown is a crude distillation unit operating in atmospheric and vacuum stages, and capable of a daily crude charge of 19,000 bbls. The new unit, of Foster Wheeler design and construction, replaces an outmoded battery of stills which was located on the site.

New Announcements Due

In the Sabine district, embracing Port Arthur, Beaumont and the intervening area along the Neches River, the largest projects of the year are completed, but further modernization is due to begin shortly. The new 18,000-bbl. refinery of Atlantic Refining Co. at Atreco has begun routine operation, having completed several weeks of trial runs. The plant is entirely new, comprising a combination unit operating under license with Polymerization Process Corp. with a production of 1,200 bbls. of gasoline per day, and complete auxiliary equipment of a modern refinery.

At Smiths Bluff, Pure Oil Co. has finished a widespread refinery construction program, greatly revamping the plant. A 10,000-bbl. crude unit for use in the manufacturing of special solvents was placed in line several months ago. Immediately following completion of that unit, work was begun on a 13,000-bbl. combination unit employing selective cracking and replacing former older cracking equipment at the refinery. Both jobs were designed and constructed by the Lummus Co.

Another crude distillation unit was completed in the area recently, at the Port Arthur refinery of Texas Co. The new plant contracted by E. B. Badger & Sons Co. also replaces older equipment, and will handle 15,000 bbls. of crude daily.

In addition to these projects, Gulf Oil Corp. is at present building an iso-octane unit at its Port Arthur refinery. Design of the plant is being perfected by Gulf engineers in collaboration with Hydro Engineering & Chemical Co., and Lummus Co. has contract for fabrication of the unit. Also under way is a new 3,000-bbl. lube oil rerun unit, which follows the construction of a similar 1,000 bbl. plant placed on stream early in the year.

In line with the general modernization in progress at Port Arthur, Gulf has also added a new steam generation plant to care for the increased steam and power demand.

At Beaumont, Magnolia Petroleum Co. is making plans for the addition of more cracking facilities, the units to be designed to operate under Houdray patents. No details have yet been announced concerning the new work.

Louisiana Refineries

Although little new construction has taken place during the past several months in the Louisiana Coastal sector, the two largest refineries of that area are now beginning expansion work. At Baton Rouge Standard Oil Co. of Louisiana has contracted for the construction of a new $500,000 polymerization unit. In addition, a lubricating oil manufacturing plant is being installed, and general modernization throughout the remainder of the large refinery is under way.

Shell Petroleum Corp. is planning the construction of a polymerization plant at its Norco refinery, and additional work is to be undertaken at that plant, it is reported.

Already on stream is a 9,000-bbl. cracking unit of Kellogg design, operating at the Chalmette refinery of Chalmette Petroleum Corp. The original cracking unit at the plant has been converted to a topping plant, to process the Coastal Louisiana crudes which are barged in to the refinery.

Activity along the Gulf Coast to the south and west of Houston is gaining, though the work does not approach that in the Upper Coastal refining centers. At Corpus Christi Barnsdall Refining Co. is building a 5,000-bbl. Dubbs cracking plant to process Placedo crude which is moved to the port through a new 76-mile Barnsdall line. The refinery will be served by a new oil dock on the channel at Corpus Christi.

Another refinery for that section is seen as a possibility, as the E. L. Buckley interests consider the construction of a plant near the city. The affiliated Crude Oil Pipe Line Co. and Crude Oil Terminal Co. are beginning work on a new pipe line to serve Southwest Texas fields and a larger terminal near the port.

Between Corpus Christi and Houston two small refineries have been engaged in expansion of facilities. Wood-Moore Corp. has doubled the capacity of its original 2,000-bbl. plant at Port Lavaca. At Bay City, Shelly Refining Co. is adding a 1,000-bbl. cracking plant to its refinery.

Although definite plans have not been announced, Humble Oil & Refining Co. is reported planning the construction of crude distillation and cracking units at its two Gulf Coast refineries located at Baytown and Ingleside. Present work at the latter plant includes addition to storage and general reconditioning of the entire plant.

Texas Allowable Hearing

The Railroad Commission of Texas will be called upon Sept. 20 to decide whether the allowable for October will include the 2.32 per cent of the East Texas wells hourly potential figure or whether this percentage will be reduced. With more than 23,000 wells in the field the total production has been so high under the 2.32 percentage figure that operators in some other pools in the state feel they have been penalized in order that the total state allowable might be kept within the commission orders.

Another factor to be considered is the relatively rapid drop in formation pressure noted while this field has been producing in excess of 475,000 bbls. per day under the September order. Col. Ernest O. Thompson of the commission has always expressed the opinion it is very necessary to control this pressure drop as much as possible but if fluid, both oil and water, is removed from the formation at rates as high as they have been during the past few months the pressure drop will continue to be more than desired for real conservation and the greatest ultimate recovery.

On the other hand other members of the commission are of the opinion the returns to well owners and to royalty holders from East Texas is still very low and it is reported they favor maintenance of the 2.32 per cent figure.

In East Texas the minimum allowable for a marginal well is 20 barrels per day. The point is now raised whether a well that does not have to actually pump all of its oil can be so classified. Many wells must be primed to start flow and then will produce the balance of their allowable by natural flow methods. Whether such wells can properly be classified as marginal wells is one question to be decided by the commission before the next order.

None of the commissioners has definitely taken a stand on these questions but there is a great deal of discussion among operators, both in East Texas and in other fields, and from all indications the hearing will develop some interesting phases.

Magnetic Storm

Tucson, Ariz. observatory of the U. S. Coast and Geodetic Survey report a moderate magnetic storm began September 10 at noon and ended on September 11 at 10 a.m., central standard time.

OBITUARIES

DAN L. PERKINS, 51, Shreveport, La., geologist and oil man, whose geological studies resulted in the discovery of the Rodessa oil and gas field, died last week at the Barnes hospital in St. Louis, from the effects of a gun-shot wound inflicted by a negro, who attempted to rob him.

JOSEPH A. DEPEW, 58, Tulsa, an employe of the Sinclair Prairie Oil Co. since 1917, died last week.

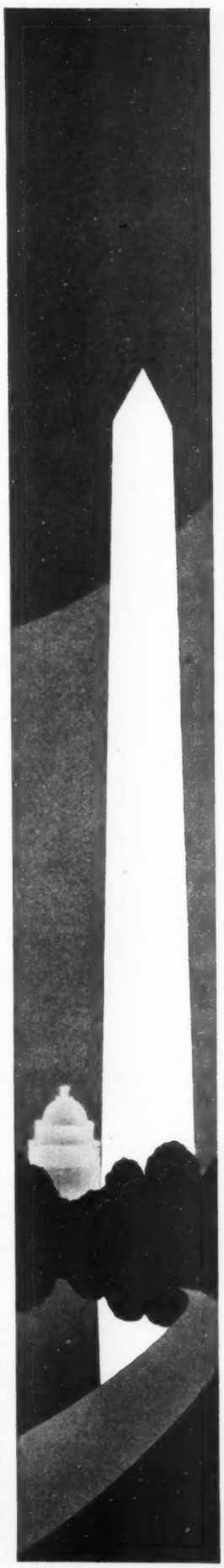
SAMUEL WALLER, 80, retired Tulsa oil man, died last week. He operated in the Cushing oil pool and in Texas.

CHARLES CAMPBELL, 46, Okmulgee oil operator, died last week at Effingham, Ill., of pneumonia.

O. F. THOMPSON, 78, retired general superintendent of Associated Producers Co. (Tide Water Associated) died at his home in Bradford, Pa., recently. He had been with the company 44 years, beginning as a lease workman and ending as a director of the company.

Year's Experience Under the Walsh-Healy Law

By HENRY D. RALPH



WASHINGTON, D. C., Sept. 13.—It is exactly one year since the Secretary of Labor, Miss Frances Perkins, issued the first regulation under the Walsh-Healey government contracts act, and the enforcement of the law has settled down to such routine it is seldom mentioned.

Nevertheless, the Walsh-Healey law remains as one of the most important levers by which the New Deal hopes to raise wages and shorten hours. Its results along this line have not been spectacular but enforcement officials declare they are satisfied. On the other hand, the law has not caused the disturbance to industry predicted when it was passed. Generally speaking, the law appears to be operating with few complaints.

Petroleum Suppliers

The petroleum industry has not been greatly affected by it. Some suppliers may be declining to bid for government business rather than comply with the law, but the government has been able to purchase all the petroleum products it desired without any increased price attributable to this law. Most large oil companies doing business with the government were already operating on a work week of 40 hours or less, and wages in the industry are so high compared with many other industries that the secretary of labor has taken no steps to fix a minimum wage for any branch of the oil industry.

The law applies to all government contracts for the purchase of supplies in excess of $10,000 and stipulates that in filling such contracts no employes may work more than eight hours in any one day or more than 40 hours in any one week. Unlimited overtime is permitted on payment of time and one-half. An employe engaged on government work is entitled to time and one-half for all overtime in excess of eight hours in any one day or 40 hours in any one week, even though part of those periods and all of the overtime are devoted to commercial work, the Department of Labor has ruled. Child labor and convict labor are prohibited, but such labor is not a factor in the oil industry. There is also a requirement that government contractors protect the safety and health of their employes, but this provision has caused no difficulties because the secretary of labor has ruled this portion of the act is complied with when a manufacturer or distributor is living up to the sanitary and safety code of his state.

Splitting Contracts

One reason why the law has not caused much disturbance is that many government purchasing agents are splitting up their purchases into contracts of less than $10,000 each. To meet this situation, enforcement officials and labor leaders are seeking to have the act amended to include all contracts of more than $2,000 each, and such an amendment was included in the senate draft of the Black-Connery wage and hour bill, which failed of enactment. There is no disposition to let the Walsh-Healey law become a dead letter, even though a general wage and hour regulatory measure like the Black-Connery bill should be enacted, because it does provide the government with a certain degree of control over industrial labor conditions. Extension of the law to all contracts of more than $2,000 would greatly widen its effectiveness.

Since the law was enacted it has applied to approximately 5,000 government contracts covering purchases amounting to $235,780,000. There have been 173 contracts for fuel oil, totaling $17,662,331, or 7.83 per cent of the total, and 190 contracts for gasoline totaling $15,671,104, or 6.94 per cent of the total. However, these dollar figures are largely estimates since a majority of the fuel and gasoline contracts are what is known as general schedule contracts wherein a supplier agrees to make deliveries when, where, and as ordered during a period of several months or a year.

Oil Industry Application

There have been only a few rulings as to the application of the public contracts act to the petroleum industry, the more important ones of which follow:

The act does not apply to distributors and operators of service stations not owned by the companies who fall within the category of independent contractors and who make delivery of an oil company's products to governmental agencies for the company's account. In contracts for delivery of crude oil where the contractor is a producer, the act covers the employes engaged in extracting the oil and preparing it for shipment. In contracts for gasoline, kerosene, benzene, fuel oil, and other petroleum products in which the contractor is a refiner, the act applies to employes engaged in manufacturing; i. e. the employes at the refinery engaged in the refining processes and preparing the oil for shipment. Where the contractor is a dealer the act applies to employes at terminals, warehouses, and bulk storage tanks, including warehousemen, compounders, and chemists testing the lot out of which the government order is filled, and the crews engaged in loading the materials in vessels, tankcars, or tank-wagons for shipment.

Purchases Through Dealers

The problem of purchases through dealers caused considerable confusion at first, but has now been pretty well settled through a series of rulings. If a contract is awarded to a manufacturer subject to the act and in the normal course of business the manufacturer purchases supplies or materials which are used in manufacturing the commodity required by the government, the work performed by the vendor of such supplies and materials and his employes is not subject to the act. When a manufacturer undertakes a contract subject to the act, he assumes an obligation to produce the commodities required under the labor standards of that act, and he may not relieve himself of this obligation merely by shifting the work to another. Whenever a dealer causes a manufacturer to deliver directly to the government the materials required under the contract, such dealer will be deemed the agent of the manufacturer in executing the contract. As the principal of such agent the manufacturer will be deemed to have agreed to the stipulations contained in the contract.

If a contract with a dealer calls for several items aggregating more than $10,000 and he arranges with a manufacturer to produce and ship directly to the government an item involving less than $10,000, the manufacturer will still be bound by the stipulations contained in the regular dealer's contract. This places on the dealer the responsibility of informing the manufacturer that the supplies are to be sold to the government, and in at least one case where this was not done, government inspectors required a manufacturer to make restitution to his employes for overtime work and the manufacturer brought suit against the dealer to cover this amount on the ground that he had not been informed that the work was subject to the Walsh-Healey act.

the OIL AND GAS JOURNAL

PRODUCING REFINING NATURAL GASOLINE PIPE LINE

Published weekly by The Petroleum Publishing Company at Tulsa, Oklahoma

Fair Treatment Needed

Every American who owns an automobile or rides in a car or bus and has his supplies speeded by truck is indebted to the pipe liner. The motorization of the United States which is the wonder of the world would have been impracticable without the oil industry's system of pipe line transportation.

The amazing magnitude of this service is strikingly set forth in the introductory page of the Pipe Line Section of this issue of The Oil and Gas Journal. The crude oil lines have achieved a new record in the movement of more than 3,600,000 barrels daily. The natural gas lines have transported an average of 6,000,000,000 cubic feet a day. The gasoline lines have shipped 5,460,000 gallons daily. All previous records of the pipe line industry have been exceeded.

Impressive as this record is, it is apparent to any student of transportation that the pipe line industry can still go a long way further providing it has assurance of fair treatment from the federal and state governments.

Although the natural gas industry has approximately 9,000,000 customers, (including those who use blended gas), the large majority of towns and cities in the United States do not have this economical and convenient fuel. New fields discovered this year and those to be discovered in succeeding years can make gas available provided owners of properties and pipe line companies are sure of an adequate return over a sufficient period of time.

In the case of crude oil, the existing system of pipe lines can be extended to new refinery locations in consuming centers to the benefit of both consumers and owners.

The gasoline pipe line companies, despite steady expansion, still handle less than ten per cent of the gasoline produced and consumed in this country. As the density of gasoline consumption increases the transportation of gasoline by pipe line becomes more and more practical.

A great deal depends upon the ability of some of these future lines to be built and operated in partnership, with two or more companies involved in the ownership and operation.

All these things can be done. The biggest drawback to more rapid development of the pipe lines (although this has been a remarkable year) is the antagonistic attitude of governmental units, city, state and federal.

It has been proved that pipe lines can handle these commodities more cheaply and more efficiently in inland transportation than any other agency. This has been an important factor in the low prices consumers have paid for petroleum products.

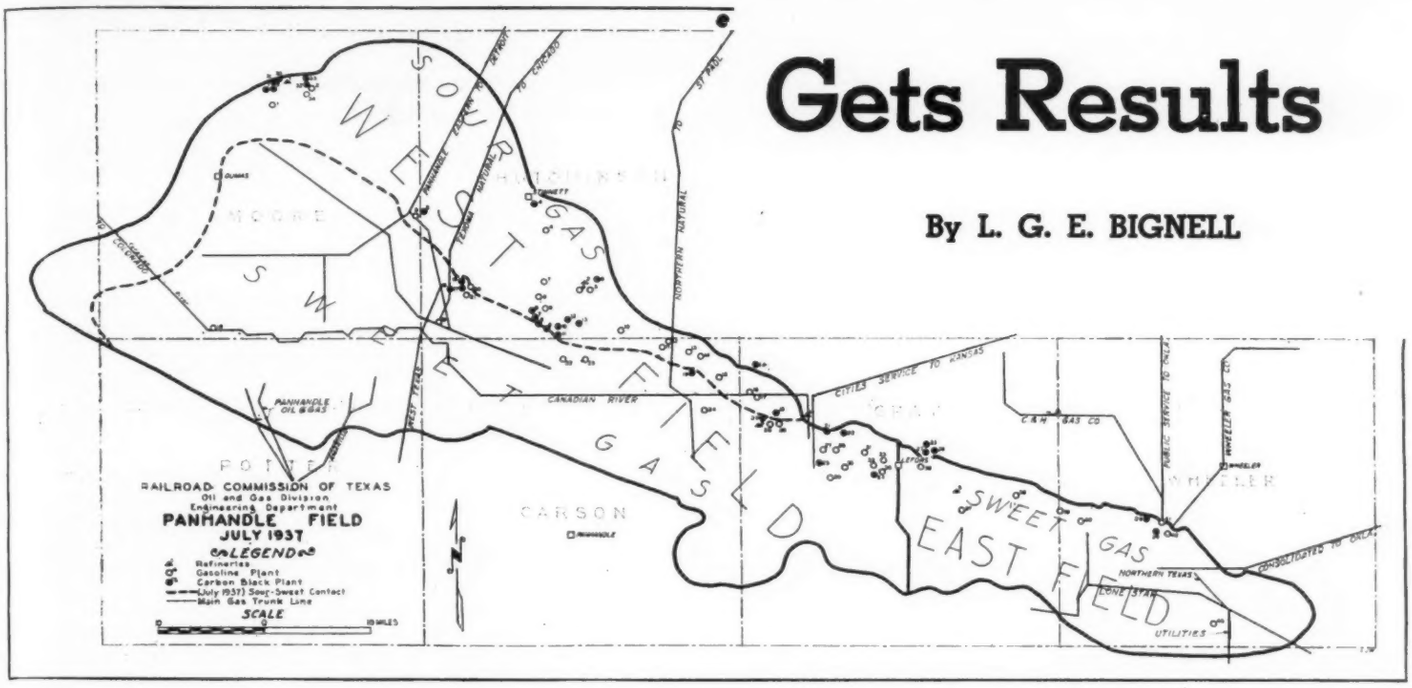
Public officials, executive and legislative, have been unmindful of the value of this service to the public. Developments in recent years have been discouraging instead of cooperative, such as the federal tax on pipe lines, special taxes on natural gas, and the tendency to impose ad valorem taxation and discriminatory penalties upon this industry.

The policy of harassing the pipe line industry also overlooks the fact that this method of transportation has been essential for the conservation of natural gas, some of which must be produced to get the crude oil. Pipe lines have provided an outlet to distant markets for gas which would otherwise have been wasted.

Additional outlets can be provided for petroleum and natural gas by additional pipe lines if the companies can be assured that the millions of dollars invested will not be subjected to grossly unfair restrictions and regulations and to exorbitant taxation.

Conservation in the Panhandle Gets Results

By L. G. E. BIGNELL



CARBON BLACK PLANTS

WEST FIELD

SOUR GAS

No.	Name	Cap.
1	Reliance-United	30,000
2	Columbian-Sunray	30,000
3	Cabot-Armstrong	8,000
4	United-Stinnett	15,000
5	United-Norfolk	15,000
6	Huber-Borger	35,000
7	Western-Palmer	25,000
8	Panhandle	12,500
9	United-Rock Cr.	60,000
10	Western-Westoar	62,000
11	United-Alexander	30,000
12	Cresent-Borger	13,000
13	United-McIlroy	40,000
14	Western-Kingsmill	20,000
15	Gen. Atlas-Gray Co.	4,000

SWEET GAS

No.	Name	Cap.
16	United "A" Sanford	16,000
17	United "B" Sanford	65,000
18	United-Combined	30,000
19	Cabot-Schafer	50,000
20	Cabot-Kingsmill	30,000
21	Western-Pampa	7,000
22	Magnolia-Pampa	5,000
23	Texas Elf-Bowers	50,000
24	Better Blacks-Powell	300

EAST FIELD

SWEET GAS

No.	Name	Cap.
25	Peerless-Coltexo	1,550
26	Western-Lefors	15,000
27	Coltexo-Lefors	40,000
28	Western-Lela	16,500
29	Western-Magic	6,500
30	Crown-Crown	12,000
31	Continental-Con	75,000
32	Moore-Sunray	?
33	Colphil-Sunray	?

REFINERIES

1	Shamrock-Sunray
2	Phillips-Alamo
3	Panhandle-Pan
4	Danciger-Pampa
5	Shamrock-Davis
6	Midwest-Shamrock

GASOLINE PLANTS

WEST FIELD

SOUR GAS

No.	Name	Cap.
1	Shamrock	180,000
2	Phillips-Ray	60,000
3	Skelly-Armstrong	30,000
4	Phillips-Canadian	24,000
5	Skelly-Panhandle	25,000
6	Phillips-Pantex	30,000
7	Phillips-Johnson	65,000
8	Huber Pet	70,000
9	Phillips-Rock Cr.	165,000
10	Phillips-Texroy	90,000
11	Shell-Bryan No 2	15,000
12	Skelly-Crawford	10,000
13	Shell-Bryan No 17	22,500
14	Mag.-Skellytown	25,000
15	Skelly-Schafer	60,000
16	Skelly-Kingsmill	30,000
17	Portland-Pampa	30,000

SWEET GAS

No.	Name	Cap.
18	Canadian R.-Bivins	100,000
19	Texoma-Fritch	175,000
20	Henderson	150,000
21	Phillips-Sanford	90,000
22	Phillips-Carson	50,000
23	Phillips-Panhandle	20,000
24	Cargray-McConnel	250,000
25	Mag.-Kingsmill	30,000
26	Empire-Sullivan	40,000
27	Shell-Pampa	14,000
28	Wilcox No 5	12,000
29	Phillips-Pampa	40,000
30	Phillips-Bowers	40,000
31	Phillips-North	44,000
32	Phillips-Gray	66,000
33	Magnolia-Lefors	30,000
34	Magnolia-Sunray	50,000
35	Danciger-Lefors	20,000

EAST FIELD

SWEET GAS

No.	Name	Cap.
36	Coltexo No 1	60,000
37	Shamrock-Clayton	17,500
38	Phillips-Lefors	40,000
39	Phillips-Bellco	10,000
40	Smith Bros.-Sitter	155,000
41	Buckeye-Magic	22,000
42	Airolene-Magic	22,000
43	Columbian-Shamr'k	40,000

Two years ago the industry was concerned by the rapid development of stripping plants in the Texas Panhandle and the waste of large volumes of gas. In the annual report on the Panhandle oil and gas fields prepared in August by the oil and gas division engineering department of the Railroad Commission a very different picture is presented and conservation of gas and oil is now the keynote of operations. This article presents the salient facts in this report and indicates what can be done to conserve natural resources when the legislative bodies and the operators work together toward a common end.

Complying with House Bill No. 266 passed by the regular session of the forty-fourth Texas legislature in 1935, it has been the duty of the Railroad Commission of Texas to make during January and July of each year a complete test of the withdrawal rates of each gas well located in the Panhandle gas field of Texas. These data together with other valuable information on this oil and gas field have just been made available in the form of an Annual Report on the Panhandle Oil and Gas Field under the supervision of V. E. Cottingham, director of production for the Railroad Commission of Texas. The following facts are gleaned from this report, which is not published in sufficient number of copies to be distributed generally to the industry.

This is the third report on the Panhandle oil and gas field made by the commission, as one was made in March, 1936, and the other in July, 1936. Much data from those reports have been used in compiling the August, 1937, report now being considered.

The Panhandle oil and gas field overlies a part of a buried chain of granite mountain peaks which form what is known geologically as the Amarillo arch. The Panhandle field extends over these buried mountains in a southeast-northwest direction, cutting diagonally across Moore, Potter, Hutchinson, Carson, Gray, Wheeler and Collingsworth counties of Texas. The extreme southeastern portion of Hartley County is also included in the field. This area is approximately 124 miles long and has an average width of 20 miles. It is composed of 1,058,467 acres which produce sweet gas, 391,613 acres producing sour gas and a proven and semi-proven oil-producing area of approximately 250,000 acres. Approximately 40 per cent of the oil-producing acreage is included in the gas area due to the stratigraphic position of the gas- and oil-bearing formations. Oil production is confined to a series of pools extending along the north flank of the field for a distance of about 90 miles.

There are four producing formations or zones in the Panhandle field which are productive in different areas. They are (1) Brown Dolomite, (2) Gray Lime, (3) Gray Dolomite, (4) Granite Wash.

Gas was discovered in Potter County in 1918 and in May, 1921, oil was discovered by Gulf Production Co. in No. 2 Burnett in Carson County. The discovery well in Wheeler County was completed by Mid-West Exploration Co. in its No. 2 Laycock in July, 1925. In 1926 the Dixon Creek Oil & Refining Co. brought in the discovery well in the

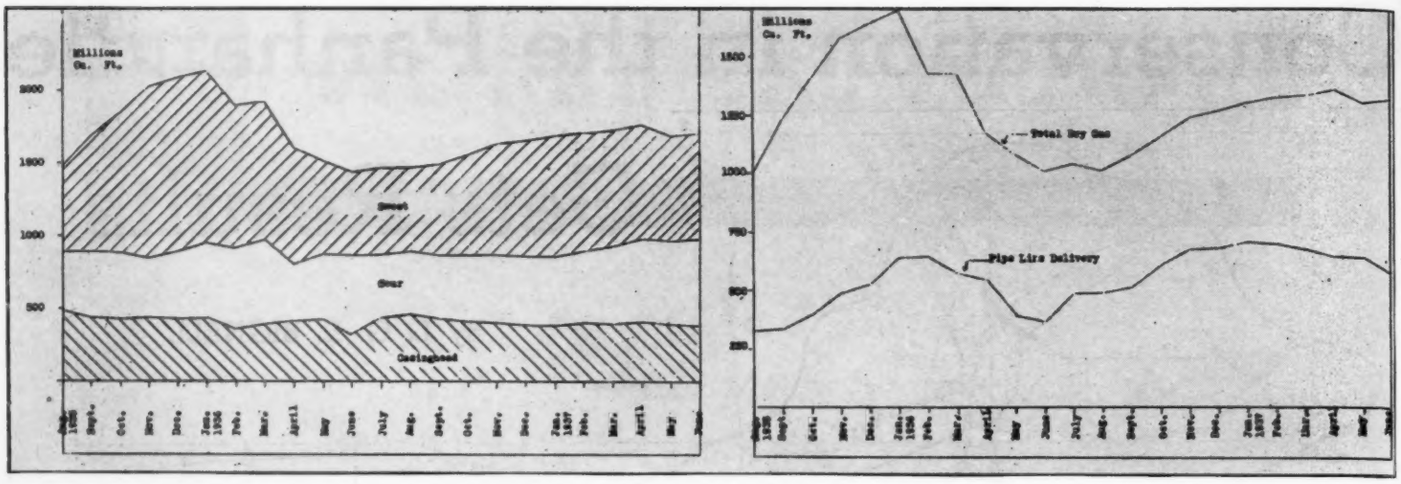


Chart I. Daily average production of sweet, sour and casinghead gas. Chart II. Average daily withdrawals of dry gas and light and fuel disposition

prolific Borger pool in Hutchinson County, and this discovery started the intensive development of the Panhandle area for oil.

In July, 1926, Gray County entered the list of producing counties in the Panhandle when Shamrock Oil & Gas Co. completed No. 1 Worley-Reynolds south of Pampa. At the time the report was written there were 3,328 wells with a daily producing capacity of 987,335 bbls. in the Panhandle area together with 1,374 gas wells with a combined potential of 22,990,282,000 feet per day.

The gas-producing area has been divided into three zones or fields and the east zone produces sweet gas. The gas from the west zone is both sweet and sour, and sour gas occurs in a belt along the north flank of the Panhandle structure.

The east field in the Panhandle area contains 263,150 acres and has 347 gas wells having an average daily potential of 7,151,308,000 feet. The weighted average pressure for the zone was 313.12 pounds per square inch in July, 1935, when the first report was made. At the time the August, 1937, report was prepared in July of this year there were 393 wells with a daily potential of 6,802,370,000 feet and the acreage had been increased to 272,948 acres. In July, 1937, the weighted average pressure was 283.84 pounds, or a drop of 29.28 pounds per square inch since July, 1935. The total volume of dry gas produced during that period was 3,552,395,000 feet.

The survey indicates that critical pressure from a pipe line standpoint has been nearly reached and booster stations will soon have to be installed if the present demand is maintained. In the west field there were 537 wells with a potential of 8,804,095,000 feet in 1935 as compared with 624 wells with a potential of 10,153,657,000 feet in July, 1937. This indicated the completion of four wells per month during that period.

The weighted average pressure was 378.82 pounds and is now 369.90 pounds per square inch, a drop of 8.92 pounds during the production of 14,924,069,000 feet, not including casinghead gas.

In the sour gas area there has been an ever-increasing demand by the carbon black plants. In June, 1935, the sour field contained 225 wells and now contains 357 wells, and a heavy drilling campaign is still under way. The potential of this field has increased from 2,651,465,000 feet in 1936 to 6,918,229,000 feet in July, 1937. Previous to 1935 the majority of the sour gas wells were in the Borger and Carson County areas, all of these wells being average wells for the Panhandle. With the entrance of Moore County into the picture, however, 100,000,000-foot wells were not uncommon. The northeastern portion of this county has proven very prolific and apparently there is a tremendous volume of gas in place there.

TABLE 1—PANHANDLE GAS FIELD DEVELOPMENT DURING 1937

	New wells or reclassified			New potential M.C.F.		
Date—	Sweet	Sour	Total	Sweet	Sour	Total
Jan.	9	5	14	256,415	146,767	403,182
Feb.	6	5	11	68,665	162,400	231,065
March	7	7	14	159,812	306,939	466,751
April	3	8	11	94,606	307,830	402,436
May	10	9	19	206,861	445,746	652,607
June	10	10	20	334,397	380,477	714,874
Total	45	44	80	1,120,756	1,750,159	2,870,915

The weighted average pressure in July, 1935, was 359.72 pounds and is now 345.82 pounds per square inch for this area.

There is evidence of a slight increase in pressure in the area immediately north and east of Borger, where the old prolific Borger oil pool is located and many of the gas wells now produce fluid. This fluid tends to introduce an error in rock pressure determinations; consequently accurate contouring of pressures, as they actually exist in the reservoir, is difficult. However, a study of the five pressure maps made at six months' intervals indicates a slight build-up, particularly during the past six months.

A recapitulation of the entire Panhandle field in July, 1935, showed a total of 1,109 wells, a potential of 18,606,868,000 feet and an area of 1,513,355 acres. A constant drilling campaign to meet carbon black and light and fuel markets has advanced the field to 1,374 wells, a potential of 22,990,282,000 and a total acreage of 1,450,080 acres. The rate of development for the first half of 1937 is shown in Table 1.

A complete picture from an acreage, potential and pressure standpoint may be had from a study of Table 2. It has been customary to use 50 pounds pressure isobars when contouring pressure in this field. Consequently acreage and potential comparisons within these bands are appropriate. Of the total acreage, 39.2 per cent is still above 400 pounds per square inch and 25.8 per cent ranges between 350 and 399 pounds. Virgin pressures in the field did not exceed 430 pounds.

It will be noted that in the table two sets of weighted average pressures are shown. One set is based on the entire acreage of the field. The other was computed using only the proratable acres in the entire field. The total acreage was determined by planimeter work done on county maps with a scale of 1 inch to the mile. The proratable acres were determined using a maximum of 160 contiguous acres per well in the east field and 640 contiguous acres per well in the west and sour fields. The weighted average for the field considering all the acreage was found to be 347.05 pounds per square inch. The average using only the proratable acres was somewhat lower, being 319.47 pounds. Exactly one year ago the pressure averaged 355 pounds and the drop has been only 7.95 pounds for the period.

The report contains a table showing the daily average production of sweet, sour and casinghead gas in the Panhandle district by fields from August, 1935, to June, 1937, inclusive. No estimates were used since all gas of importance is metered.

The figures have been reduced to a graph shown here as Chart 1 which indicates the trend of production during this period. Stripping was still common practice in 1935 and continued during the first two months of 1936. Since that time production has been held to demand levels, with casing-

(Continued on Page 78)

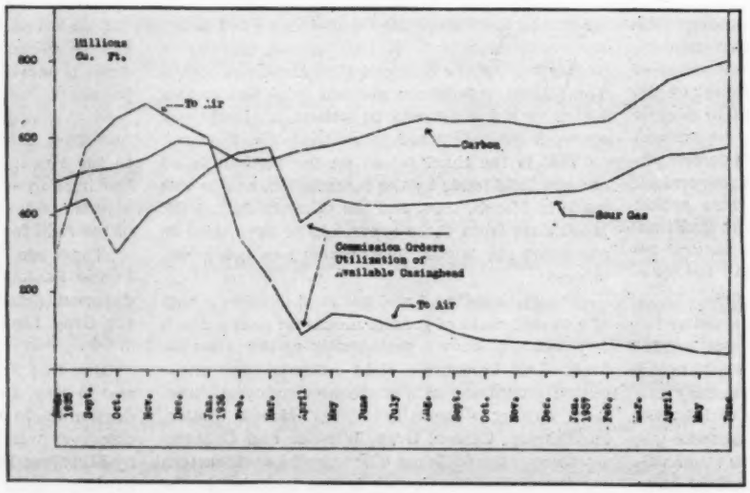
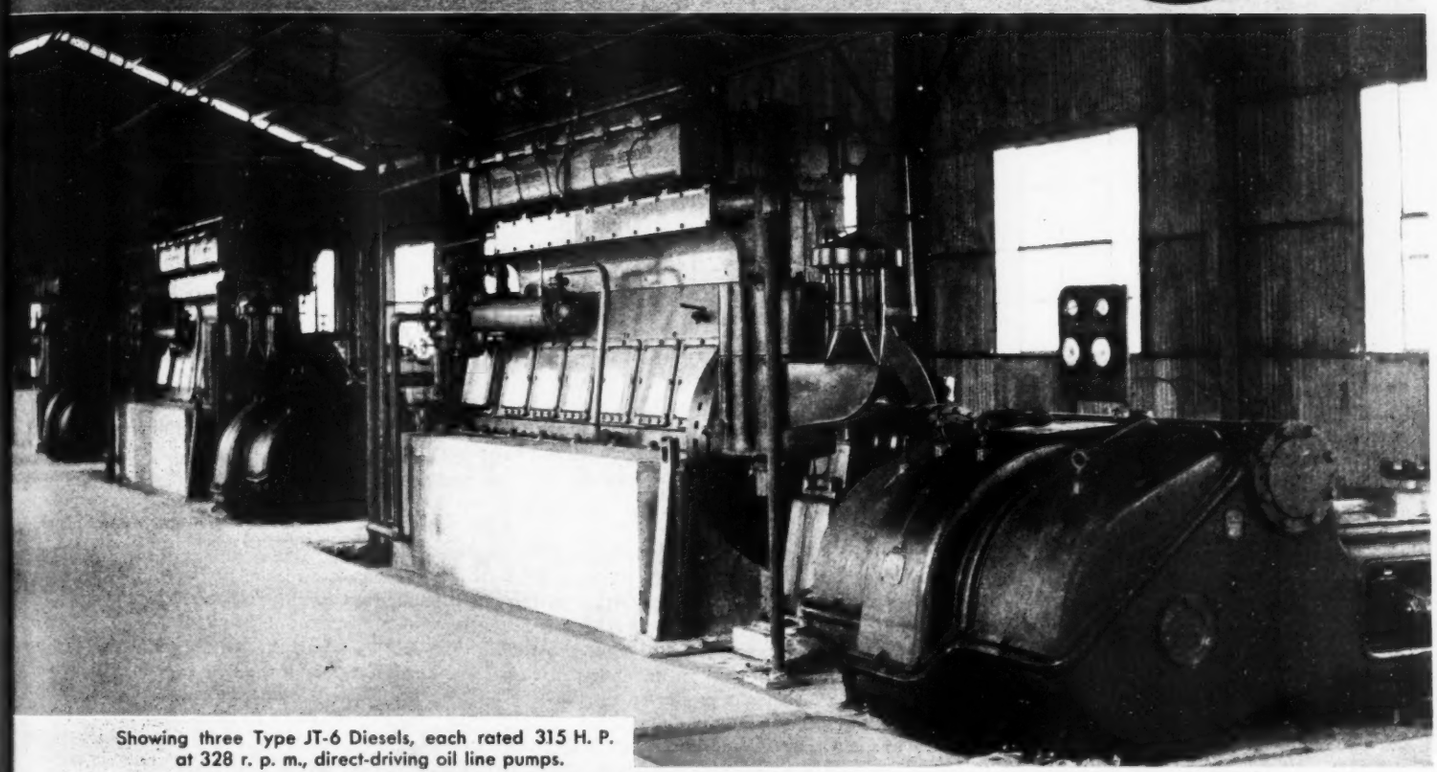


Chart III. Effect of casinghead order on sour gas production, gas to air

MORE POWER

GOT····· BESSEMERS!

"ANGLO-MEX"



Showing three Type JT-6 Diesels, each rated 315 H. P. at 328 r. p. m., direct-driving oil line pumps.

To boost the oil pipe-line pressure between Poza Rica and the loading docks at Tuxpan Bar, the Compania de Petroleo el "Aguila." S. A. installed six Cooper-Bessemer Diesel engines . . . putting three in each station.

For pumping oil continuously — 24 hours a day — this company couldn't have chosen a huskier or more compact type of Diesel than the JT! (*Reminder*: Don't buy *any* oil pipe-line Diesel until you have first investigated Cooper-Bessemers!)

25 West 43rd Street, New York City
Mills Building, Washington, D. C.
640 East 61st Street, Los Angeles, Calif.
201 East 1st Street, Tulsa, Oklahoma
631 Spring Street, Shreveport, La.
Magnolia Building, Dallas, Texas
Esperson Building, Houston, Texas

Oil Men From Foreign Countries to Visit Oil-World Exposition at Houston

The international aspect of the Oil-World Exposition is already evident from the number of representatives of foreign oil companies making inquiries regarding accommodations during the show which will be held in Houston from October 11 to 16, inclusive. With the increase in drilling, production and refining activities throughout the world there is evident a considerable interest in American tools and machinery, especially of the newer designs, that will bring increased efficiency to field and plant operations.

Among those who have made definite reservations for their stay during the oil show are: J. W. Bradbury, general agent, Mexican Gulf Oil Co., Mexico; J. E. Burden, president, Sheldon Burden of Mexico, Mexico; F. G. Burslem, driller, Apex (Tdad.) Oilfields, Ltd., Trinidad; I. A. Eremin, director, Mashinoimport Department, Amtorg Trading Corp., U.S.S.R.; Raphael Fussteig, consulting engineer, Wilstein-Neudorfer Concern, Poland; M. M. Hess, president, Hughton Cooperation Oil Co., Canada; Karl Kahn, engineer, "Unirea" Soc. Anon. Rom. de Petrol, Rumania; C. M. Long, managing director, Blood Indian Oils, Ltd., Canada; L. McKillop, drilling superintendent, Oil Search, Ltd., Australia; John Machado, A. R. Tillotson E. en C., Mexico; Werner Muller, Alfred Wirth & Co., Germany; A. Norcott, field manager, International Petroleum Co., South America; Inz. T. Porembalski, superintendent, Standard Nobel w Polsce, S. A., Poland; Sr. Francisco Rappalini, administrador, Argentine Government Oil Fields; A. R. Tillotson, A. R. Tillotson S. en C., Mexico; Robert Wesselhoeft, manager for Colombia and Venezuela, Texas Petroleum Co., Colombia; R. B. Kester, care of Standard Oil Co. of Venezuela, Quiriquire, Venezuela.

Karl Kahn, engineer, Unirea, Rumania

Many other foreign oil operators are being provided for by Houston company personnel and by some of the exhibiting companies.

THE MARKETS*

CRUDE OIL: *Better feeling as production declines for second week. Major buyer in Ellis County, Kansas, fields reduces takings to 80 per cent of state allowable for September. The same company took 90 per cent of allowable in August. There are still small quantities of spot crude available from producers and purchasers at several points in the Southwest.*

REFINERY: *No general changes in gasoline prices but market unsettled in most refining centers. Natural gasolines advance in the Mid-Continent. Cooler weather expected to result in heavier movement of distillates and gas oil from refineries.*

TANK-WAGON AND SERVICE STATION: *Scattered reports of price cutting in third and regular grades of gasoline. Posted dealer schedules generally unchanged.*

FINANCIAL: *Oil stocks in sharp decline. Average of 30 representative stocks for week ending September 11: High, 38.52; low, 34.93; close, 35.59. Week ending September 4: High, 40.64; low, 38.27; close, 38.94.*

**Detailed information in market section.*

East Texas A.P.I. Meeting

The East Texas chapter of the A.P.I. division of production will hold a meeting in the high school auditorium at Kilgore, Tex., at 8 p.m., Tuesday, October 5. The program will consist of a paper on "The Use of Malodorants in Natural Gas" and "Plug Back Work in East Texas." The last-named paper will be prepared by R. H. Maples of Cities Service Oil Co. and F. J. Mikeska of Gulf Oil Corp. The author of the first paper has not yet been selected.

Frank Phillips Optimistic

NEW YORK, Sept. 14.—Frank Phillips, president of Phillips Petroleum Co., on his return from Europe said the decline in security prices was not justified in view of present earnings and prospective continuance. He found an increasing market in Europe for oil and its products. He stated his own company and other oil companies will continue to show large earnings. He added that the oil situation looks better today than a few months ago, due to more rigid regulation of crude production and the continued increase in the sales of all oil products.

Oklahoma Hearing

The Oklahoma Corporation Commission was requested by its conservation department to set the hearing for October crude oil market demand for 9 a.m., September 28.

Aviation Gasoline to Japan

LOS ANGELES, Calif., Sept. 13.—Approximately 80,000 drums containing about 3,000,000 gallons of aviation gasoline will be dispatched from Los Angeles harbor to Japan within the next fortnight. Although local agents declare the consignment is for Mitsui interests, it is believed it is for military use.

Petroleum Accountants

The Petroleum Accountants Society of Tulsa will hold the first meeting of the new season September 24 in the Mayo Hotel at 6 o'clock.

W.P.R.A. and N.G.A.A. Sponsor Vapor-Lock Road Tests

East Texas, Louisiana and Arkansas refinery and natural gasoline men met in Shreveport, La., September 8 to review some results of research program of the Natural Gasoline Association of America and the Western Petroleum Refiners Association which are sponsoring a series of vapor-lock road tests, with an ultimate view to influencing automobile manufacturers to design car fuel systems to obtain maximum car performance from present day motor fuels.

Ray Miller vice president for Hanlon-Buchanan, Inc., was introduced by R. B. Pierce, refinery superintendent for Arkansas Fuel Oil Company of Shreveport, who pointed out the purpose of this joint action of the two allied associations, and in turn introduced William S. Lowe, secretary of the Natural Gasoline Association of America, who reviewed the progress of tests to date.

Mr. Lowe stated that the objective of this cooperative work was not to rate fuels, but to gather and correlate accurate and conclusive data which would prove to the automotive designers and manufactures that present day fuel systems are not conducive to obtaining the maximum in performance and economy from high volatile fuels. Due to changes in refinery processes over the past few years, the refiner now far exceeds the natural gasoline manufacturer in the production of these highly volatile motor fuels. Therefore, it is just as much his problem as that of the natural gasoline operator.

Rhea Couch, associate with Phillips Petroleum Co., and in direct charge of the road tests on vapor locking tendencies of different makes of cars, presented the available data at hand in the form of a progress report, and explained the testing methods under all conditions. He also lead the discussion held at the test car on display.

Although the tests are not yet complete, these facts have been revealed to date:

1. The fuel systems and carburetors of the present motor cars are not properly designed to make the most efficient use of the gasoline now available.

2. Inefficiency of the fuel systems and carbureters result in loss of the lighter ends of the fuel, reduction in octane value, and the incomplete atomization of the fuel and a consequent wastage of fuel volume. This results in the loss in car mileage of from five to ten per cent. Loss of octane value has been as high as two octane numbers in some cars.

3. Volatility and octane values, refined into gasoline at considerable expence to refiners, are not being fully utilized by present fuel systems and carburetors.

A feature of the test procedure has been the use of a special proportioning mechanism which was also displayed. This equipment consisted of two five-gallon cans mounted on a specially designed rack which fitted into the rear seat of the car. The cans were connected by short flexible tubes to an accurately calibrated proportioning valve at the bottom of the rack and were so mounted that the fluid head on both sides of the valve was equalized by a manual control which raised or lowered the cans during blending operations. One of these cans contained a low vapor pressure gasoline (7-8 lb.) and the other a high vapor pressure gasoline (12-13 lb.), the two being blended through the proportioning valve as required and the blended fuel passed on to the float chamber on the rear bumper. Check valves in both lines eliminated any tendency for the gasoline to pass from one side to the other. This method was a great time saver, permitting the change from one test fuel to another before temperatures had varied greatly, was easily duplicable and entirely practical. This system is referred to as the proportioning valve method.

Crude Oil and Refinery Summary for First Seven Months of 1936-1937

The daily average production of crude petroleum in July, 1937, was 3,571,600 bbls., which was 44,500 bbls. above the average of the previous month, but slightly under the record of May.

The yield of gasoline continued to decline in favor of gas oil and distillates. In terms of crude oil requirements, the reduction in the yield from a year ago represents just over 100,000 bbls. daily.

The indicated domestic demand for motor fuel in July was 50,929,000 bbls., or 9 per cent above a year ago. Although this marked the first time that the 50,000,000-bbl. level has been exceeded, the total was about 1,500,000 bbls. below expectations. Exports of motor fuel continued to exceed the estimates, although declining to 2,962,000 bbls. in July from just over 3,000,000 bbls. in June. The predicted decline in motor fuel stocks of about 5,000,000 bbls. almost materialized as far as gasoline was concerned, but was somewhat offset by a seasonal gain in natural gasoline stocks. Stocks of finished and unfinished gasoline on July 31 were 70,120,000 bbls., compared with 62,446,000 bbls. a year ago.

Among the statistics of the other products of particular interest were the increases of about 3,000,000 bbls. in both light and heavy fuel oil stocks.

United States Supply and Demand—Crude Oil (Bbls.)

Seven months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Indicated domestic demand‡	Exports	Stocks refinable crude July 31
1937	745,823,000	725,341,000	*20,482,000	*2.8	730,887,000	14,936,000	690,523,000	34,818,000	308,666,000
Daily average	3,518,033	3,421,420	96,613	....	3,448,000	70,453	3,257,180	164,235	.....
1936	646,138,000	654,603,000	8,465,000	1.3	627,989,000	18,149,000	627,524,000	27,079,000	306,390,000
Daily average	3,033,512	3,073,254	39,742	....	2,948,000	85,207	2,960,000	127,131	.....
Increase, 1937	99,685,000	70,738,000	.....	....	102,898,000	†3,213,000	62,999,000	7,739,000	2,276,000
	15.4%	10.8%	.....	....	16.3%	†17.7%	10%	28.6%	.7%

Supply and Demand—Refinery Products—Motor Fuels (Bbls.)

Seven months—	Total supply	Total demand	Excess Demand	Excess Pct.	Domestic production	Imports	Domestic demand	Exports	Stocks July 31§
1937	324,201,000	314,870,000	*9,331,000	*2.9	324,201,000	.....	294,659,000	20,211,000	77,038,000
Daily average	1,529,250	1,485,235	.....	....	1,529,100	.....	1,389,900	95,330	.....
1936	290,771,000	283,348,000	*7,423,000	*2.6	290,771,000	.....	267,599,000	15,749,000	68,292,000
Daily average	1,365,122	1,330,272	.....	....	1,365,100	.....	1,256,300	73,900	.....
Increase, 1937	33,430,000	31,522,000	.....	....	33,430,000	.....	27,060,000	4,462,000	8,746,000
	11.5%	11.1%	.....	....	11.4%	.....	10.1%	28.3%	12.8%
Seven months—			**Kerosene**						
1937	36,795,000	34,875,000	*1,920,000	*5.5	36,795,000	.....	29,777,000	5,098,000	7,553,000
1936	32,357,000	32,045,000	*312,000	*.9	32,357,000	.....	28,495,000	3,550,000	8,228,000
Increase, 1937	4,438,000	2,830,000	.....	....	4,438,000	.....	1,282,000	1,548,000	†675,000
	13.7%	8.8%	.....	....	13.7%	.....	4.5%	4.4%	†9.0%
Seven months—			**Gas Oil, Distillate Fuels and Residual Fuel Oil¶**						
1937	281,253,000	280,480,000	*773,000	*.2	266,699,000	14,554,000	255,232,000	25,248,000	107,791,000
1936	255,020,000	250,283,000	*4,737,000	*1.8	244,636,000	10,346,000	230,660,000	19,623,000	108,721,000
Increase, 1937	26,233,000	30,197,000	.....	....	22,063,000	4,208,000	24,572,000	5,625,000	†930,000
	10.3%	12.1%	.....	....	9.0%	42.1%	10.6%	28.6%	†.09%
Seven months—			**Gas Oil and Distillate Fuels**						
1937	81,660,000	80,742,000	*918,000	*1.1	81,104,000	556,000	64,114,000	16,628,000	23,637,000
1936	71,586,000	66,702,000	*4,884,000	*7.3	71,586,000	.....	55,043,000	11,659,000	24,814,000
Increase, 1937	10,074,000	14,040,000	.....	....	9,518,000	556,000	9,071,000	4,969,000	†1,177,000
	14.1%	21.1%	.....	....	13.3%	.....	16.4%	42.6%	†5.0%
Seven months—			**Residual Fuel Oils**						
1937	199,593,000	199,738,000	145,000	.07	185,595,000	13,998,000	191,118,000	8,620,000	84,154,000
1936	183,434,000	183,581,000	147,000	.07	173,070,000	10,364,000	175,617,000	7,964,000	83,907,000
Increase, 1937	16,159,000	16,157,000	.....	....	12,525,000	3,634,000	15,501,000	656,000	247,000
	8.8%	8.8%	.....	....	7.1%	35.1%	8.8%	8.3%	2.9%
Seven months—			**Lubricating Oils**						
1937	20,397,000	20,314,000	*83,000	*.04	20,397,000	.....	13,931,000	6,383,000	6,566,000
1936	17,618,000	18,025,000	407,000	2.3	17,618,000	.....	13,096,000	4,929,000	6,620,000
Increase, 1937	2,779,000	2,289,000	.....	....	2,779,000	.....	835,000	1,454,000	†54,000
	15.7%	12.7%	.....	....	15.7%	.....	6.4%	29.6%	†.8%
Seven months—			**Petroleum Wax (Lbs.)**						
1937	320,589,000	323,320,000	2,731,000	.8	301,000,000	19,589,000	179,096,000	144,224,000	107,903,000
1936	285,752,000	282,170,000	*3,582,000	*1.2	276,640,000	9,112,000	178,478,000	103,692,000	118,257,000
Increase, 1937	34,837,000	41,150,000	.....	....	24,360,000	10,477,000	618,000	40,532,000	†10,354,000
	12.2%	14.5%	.....	....	8.8%	115%	3.5%	42.1%	†9.6%

*Excess supply. †Decrease. ‡Crude oil only. §Includes finished, unfinished refinery, gasoline and natural gasolines. ¶Gas oil and fuel oil equals gas oil and distillate fuels plus residual fuel oils. Note: Total supply equals domestic production plus imports. Total demand equals domestic demand plus exports Data on demand for refined products are based on refinery shipments.

Crude Oil Run to Stills and Total All Oils (Bbls.)

Seven months—	Total imports§	Total exports§	Total crude to stills	Per cent yield gasoline‡	Nat. gasoline production	Total supply all oils*	Total demand all oils*	Stocks all oils July 31
1937	32,993,000	92,987,000	671,694,000	46.8	27,101,000	792,688,000	757,910,000	553,424,000
Daily average	155,620	438,600	3,168,300	....	127,800	3,739,000	3,575,000	.....
1936	31,929,000	72,350,000	608,479,000	46.4	23,339,000	684,655,000	680,857,000	545,498,000
Daily average	149,900	339,600	2,856,700	....	109,500	3,214,000	3,197,000	.....
Increase, 1937	1,064,000	20,637,000	63,215,000	....	3,762,000	108,033,000	77,053,000	7,926,000
	3.3%	28.6%	10.4%	....	16.3%	15.8%	11.3%	1.4%

*Total all oils includes crude and refined products, natural gasoline and benzol. †Decrease. ‡Includes natural gasoline blended at refineries. §Includes crude oil and refinery products. In case of imports includes receipts in bond and for domestic use. All data based on Bureau of Mines reports.

CONSTRUCTION FEATU
THAT APPEAL TO

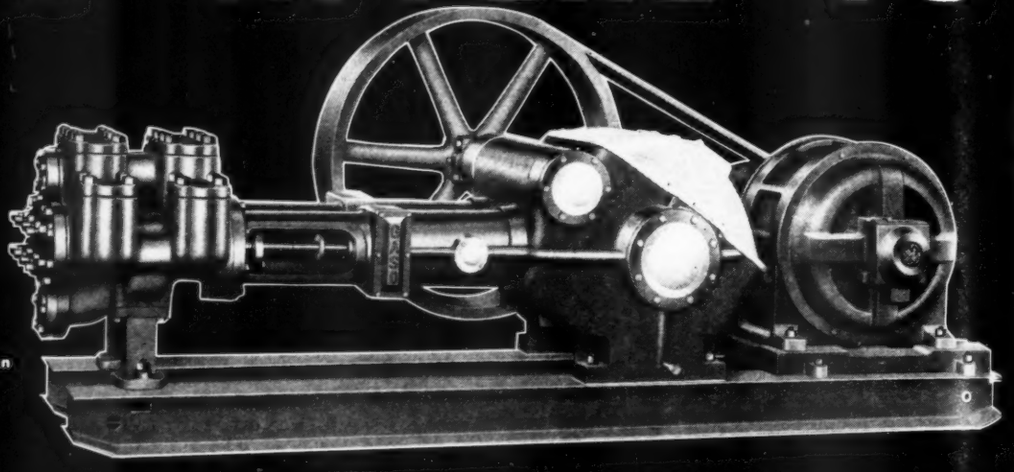
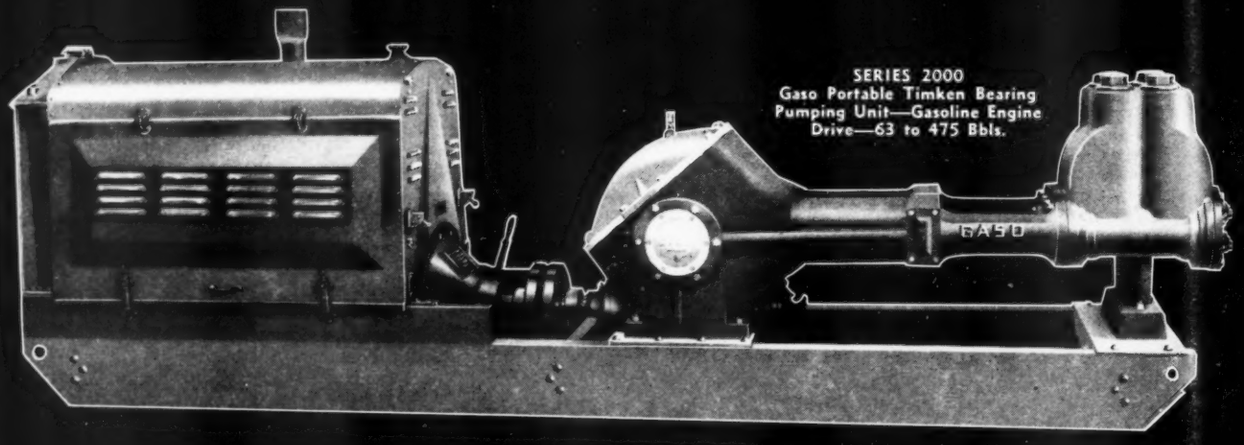
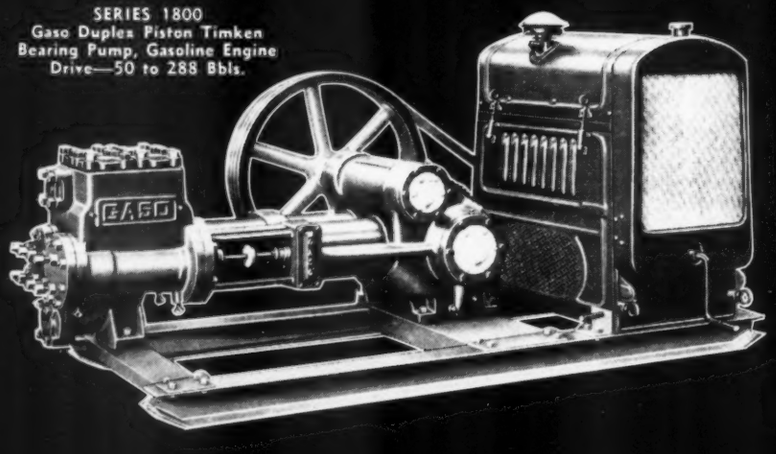


FIG. 1742
Gaso Duplex Piston Timken Bearing Power Pump—54 to 250 Bbls.



SERIES 2000
Gaso Portable Timken Bearing Pumping Unit—Gasoline Engine Drive—63 to 475 Bbls.



SERIES 1800
Gaso Duplex Piston Timken Bearing Pump, Gasoline Engine Drive—50 to 288 Bbls.

GASO PUMPS

URES OF GASO PUMPS PIPE-LINE ENGINEERS

GASO Pumps represent a 20-year evolution. Close specialization on one type of product for one industry has enabled GASO to evolve a line of pumps exactly suited to the service requirements of their field and highly perfected in every mechanical detail. Just a few of their outstanding features, which have helped to make them the choice of pipe line engineers throughout the world, are here listed:

No Overlapping of Piston Rods. Long frames prevent overlapping, so pumped fluids will not reach crankcase.

Extra-Large Valve Openings and Fluid Passages permit proper filling at highest speeds without undue shock or loss of power through friction.

All Valves on One Level, except in Valve-Pot type where suction valves lift through discharge valve seats, render all valves easily accessible.

Extra-Deep Stuffing Boxes give tightness without undue tension, reducing friction.

Gears Center-Mounted on Shafts, equalize pumping load on bearings, promoting long life.

Cranks Set at 90-Degree Angle give overlapping piston stroke, assuring smooth, uniform flow.

Uniform Wear on Ring Gears. Worms are hardened alloy steel, ring gears bronze, thus wear is uniform on ring gear, and tooth profile is not altered.

Extra-Large Timken Bearings. Crank, pinion and worm shafts are mounted on extra-large Timken Tapered Roller Bearings, each operating in separate removable cast iron housing oiled from exterior.

Self-Lubricated. Pumps are fully enclosed, with gears, crosshead and connecting rod bearings flood-lubricated from oil bath in crankcase. One oiling lasts 4 to 6 months.

Few, Large Parts. Simplicity of design and few, sturdy parts of best materials, have been GASO characteristics from the start.

Versatility. Interchangeable liners of any material specified, valves of any type desired, pistons, rings and piston rods of any materials specified,—suggest the versatility of GASO Pumps.

Replacement Parts that FIT. All parts are machined carefully to jigs, insuring accurate fit of any and all replacement parts.

Tests. Fluid ends are tested at hydraulic pressures of twice their working loads, and pumps are run under working load conditions before shipping to insure that all parts are properly adjusted.

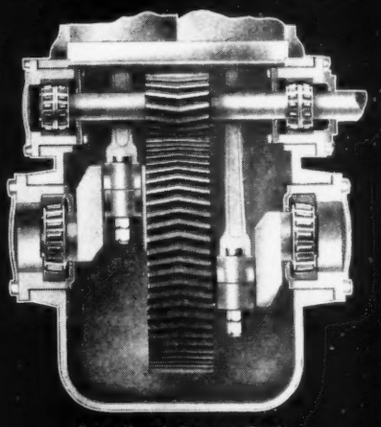
This tells only part of the story of GASO merit. Engineers are invited to send for our catalog, or refer to

GASO Section, 1937 Composite Catalog

GASO PUMP & BURNER MFG. COMPANY

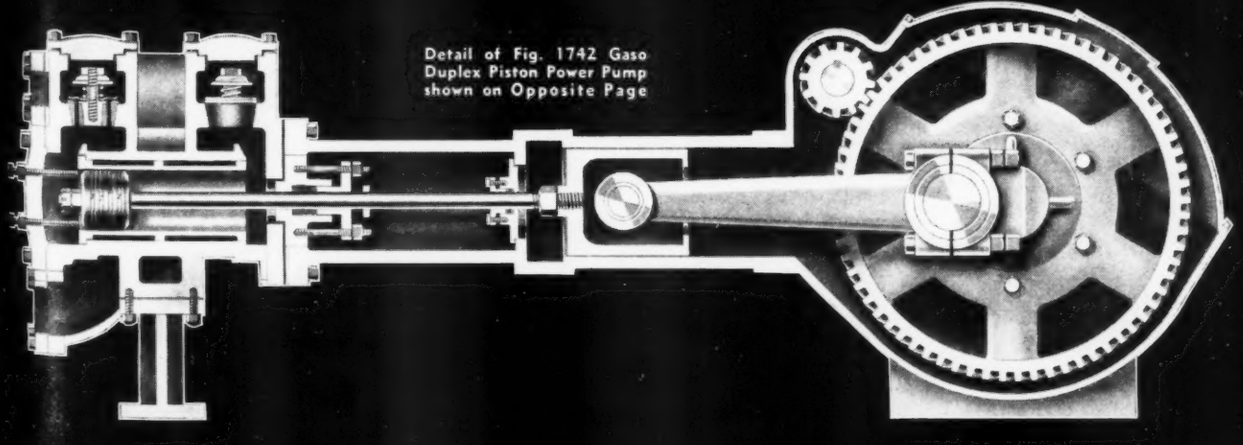
Tulsa, Oklahoma

Export Office: 149 Broadway, New York



Detail of Power End, Gaso 1700 Series Duplex Piston Power Pumps

Bronze Worm Gear and Steel Worm used in Gaso 2000 Series Portable Pumping Plants



Detail of Fig. 1742 Gaso Duplex Piston Power Pump shown on Opposite Page

Pipe Line Activity

Allred Asks Pipe Line Tax

AUSTIN, Tex., Sept. 13.—Governor James V. Allred has called the second extraordinary session of the forty-fifth legislature to convene on September 27 and consider revenue-raising problems.

"It looks as if the utilities and pipe lines may have taken over the government," he said, "and I am going to find out at the special session if it is so."

The governor said the franchise tax on the pipe lines was reduced on the theory that those businesses had to pay also an intangible assets levy.

"Yet," he said, "the latter has been tied up in the courts and collections have been very small."

He suggested a possible way to "make the pipe lines pay more" would be to levy "a little income tax on them," adding that some states have corporation income taxes and there was no doubt in his mind they were constitutional.

Welding Contracts

H. C. Price Co. of Bartlesville, Okla., announces it has been awarded contracts for electric welding and has started construction on the following pipe lines:

From Ligon & Ligon—45 miles of 12-inch in West Virginia for Godfrey L. Cabot, Inc.

From Standard Oil Co. of Ohio—37 miles of 6-inch from Fostoria to Toledo.

From Kelly-Dempsey & Co.—64 miles of 6-inch from Cleveland to Canton for the Standard Oil Co. of Ohio.

From B. & M. Construction Corp.—52 miles of 8-inch and 10-inch in Illinois for Pure Oil Co.

From Williams Brothers Corp.—142 miles of 6-inch, 8-inch and 10-inch in Louisiana for the Standard Oil Co. of Louisiana.

From Ford, Bacon & Davis Construction Corp.—4 10-inch lines across the Mississippi river near Yazoo City, Miss., for the Southern Natural Gas Co.

All of the lines are to be electric welded, using the Fleetweld process.

Second Sand Hills Outlet

FORT WORTH, Tex.—Gulf Refining Co. pipe line division is preparing to lay about 26 miles of 6-inch line from its Sand Hills field in western Crane County to connect with its main line from Crane Station to Midland tank farm just east of Midland, giving the Sand Hills field its second outlet. Shell Pipe Line Co. now has a connecting line into the field from its Winkler-McCamey line. The new line will connect with the Gulf 8-inch carrier in the northeastern corner of Crane County.

Lisbon Contract

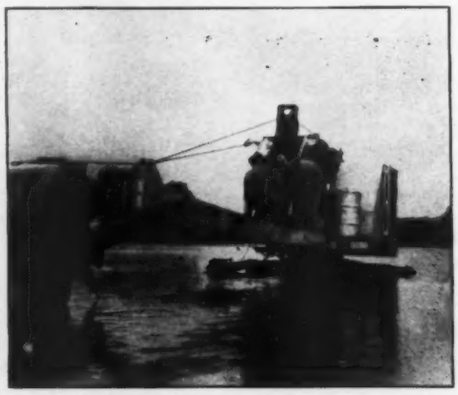
D. T. Ross Construction Co. of Tyler, Tex., has been awarded contract for the construction of the Caddo Pipe Line Co. 30-mile 6-inch welded line from the Lisbon field of Claiborne and Lincoln parishes to Homer, where it will connect into the Arkansas Fuel Oil Co. system.

Two Lines to Wasson Field

FORT WORTH, Tex.—The Humble Pipe Line Co., is preparing to lay 30 miles of 6-inch line to connect the Wasson field in northern Gaines County with its station in the Hobbs field, New Mexico, northern terminus of its trunk line out of West Texas. At the time the map of West Texas lines on page 88 was prepared it was believed the company would extend its line from the Means field in northern Andrews County, but the new line will be considerably shorter. It will no doubt also be extended to connect with fields in Yoakum and also in Hockley and Cochran at a later date although nothing has been reported on such an extension to date.

Continental Oil Co. is starting a survey for construction of a pipeline to serve the Wasson Field.

Digging Trench for Crossing



Jones & Hanrahan, pipe line contractors, Dallas, Tex., are constructing the pipe line for Buffalo Pipe Line Co., running from Williamsport, Pa., to Buffalo, N. Y. Crossing the Chemung River at Big Flats, it was necessary to dig a trench for the pipe 5 feet under the bed of the river which is from 3 to 6 feet in depth. This was made necessary because of the shifting of the river bottom and also because of the ice floes which are encountered.

Parallel Monroe Line

SHREVEPORT, La.—Southern Gas Line, Inc. is constructing an additional 12-inch natural gas line from the Monroe gas field to Alexandria, La., paralleling its present 12-inch line between these two points. About 28 miles of the new line has been completed from Antonio north, and work is now in progress on a loop east of Urania.

The original line has been in service for 15 years, and this parallel line is a precautionary measure to prevent any interruption in service.

North Sweden Contract

Williams Brothers Co. of Tulsa has been awarded contract to lay a 70-mile 6-inch welded pipe line from the North Sweden field in Duval County, Texas, to tidewater at Corpus Christi, for the Duval Pipe Line Co.

Standard of Ohio Lines

CLEVELAND, Ohio.—Standard Oil Co. (Ohio) announces it is constructing two gasoline pipe lines for transportation of gasoline from its Cleveland and Toledo refineries to various points within Ohio.

The first line will extend from the company's main refinery in Cleveland, Ohio, south to Akron and Canton, involving a total distance of approximately 67 miles as announced in The Oil and Gas Journal of August 26. The line will be partly 6-inch and partly 5-inch. Construction, which is being handled under general contract by Kelly-Dempsey & Co., of Tulsa, will begin in the near future and will be completed early this fall. Electric welding is being done by H. C. Price Co. of Bartlesville, Okla., which also is doing the welding on the Toledo-Fostoria line. This second line which will be 6-inch will run from the company's refinery just east of Toledo, Ohio, south to Fostoria, Ohio, a distance of about 38 miles. The company will supervise and coordinate the construction of this line.

The combined cost of the two lines is expected to be in the neighborhood of $750,000.

Natural Gas

A.G.A. Convention

The sessions of the nineteenth annual convention of the American Gas Association to be held at Cleveland, Ohio, September 27-October 1, will be divided between the Statler and Cleveland hotels. The East Ohio Gas Co. will act as hosts to the delegates and guests. Opportunity to visit the A.G.A. Testing Laboratory, combined with an excellent program has led to a flood of reservations.

N. C. McGowen, president, United Gas Public Service Corp., Houston, Tex., who has been nominated for president, will speak on "Conservation—An Industry Opportunity and Responsibility". Walter C. Beckjord, vice president and general manager, Columbia Gas & Electric Corp., will discuss "What the Gas Industry Must Do Next".

Sectional and department programs get under way Monday morning with the meeting of the Natural Gas Department.

The Natural Gas Department program follows:

Monday, September 27, 10:30:

Opening remarks and chairman's address, George E. Welker, United Natural Gas Co., Oil City.

Address of President Herman Russell, Rochester Gas and Electric Corp., Rochester, N. Y.

Address of Managing Director Alexander Forward, American Gas Association, New York City.

Meeting Competition, F. M. Banks, Southern California Gas Co., Los Angeles, Calif.

Necessary Standby Fuel and Equipment for Industrial Natural Gas Customers. (Speaker to be announced.)

2 p.m.: New York's World Fair, William T. Rasch, American Gas Products Corp., New York City, N. Y.

2,000 Years of Progressive Evolution of the Worker, A. A. Nicholson, Texas Corp., New York.

Legislation and Taxation, William A. Dougherty, Gas Companies, Inc., New York.

Report of Nominating Committee.

Election of Officers.

At the session of the technical section which opens Tuesday, Sept. 28, 2:00 p. m. Among the papers to be delivered will be the following:

Corrosion of Metals and Alloys by Flue Gases, Louis Shnidman, Rochester Gas & Electric Corp., Rochester, N. Y.

Report of Distribution Committee, D. P. Hartson, chairman, Equitable Gas Co., Pittsburgh, Pa.

Wednesday, September 29, 2 p.m.:

Principles of Gas Scrubbing, Prof. C. C. Furnas, Yale University.

Polymerization—What It Means to the Gas Industry, F. E. Frey, Phillips Petroleum Co., Bartlesville, Okla., and J. S. Carey, M. W. Kellogg Co., New York.

Problems of Regulator Freezing, M. A. Hardie, Jr., Montana Power Co., Butte, Mont.

Thursday, September 30, 2 p.m.:

Corrosion of Metals in Soils as a Factor in the Selection of Pipe Materials, Dr. Scott Ewing, research associate, National Bureau of Standards.

At the industrial gas section session L. S. Reagan, Tulsa, vice chairman of the steam generation committee and vice president of the Webster Engineering Co., will talk on "Modern Methods of Applying Gas in Large Power Boilers."

Refinery Expansion

Ethyl Plant Completed

SHREVEPORT, La.—The Baton Rouge, La., plant of E. I. du Pont de Nemours & Co., Inc. has been placed in operation and has begun the manufacture of Ethyl and "Q" fluids. The new plant has been under construction for the past several months and is the first to start operations under Louisiana's tax-exemption plan. The new facilities parallel the work of four production units at Deepwater, N. J., and will produce approximately 20 per cent of Ethyl Gasoline Corp.'s anticipated business during the remainder of 1937. A second unit is also planned for North Baton Rouge.

W.P.R.A. Wichita Program

Refiners in Kansas and Oklahoma will meet in Wichita, Kansas, September 21, at the Allis Hotel, to attend the first in a series of three fall regional technical meetings to be conducted by the Western Petroleum Refiners Association. Other meetings will be held at Tulsa, Oklahoma and Shreveport, Louisiana.

The program for the Wichita meeting, as announced by A. V. Bourque, secretary of the association:

"Corrosion—Special Emphasis on Cracking Plants" by R. L. Puckett, Barnsdall Refining Corp., Wichita, Kans.

"'Applications of Colloids to Water Conditioning" by L. Drew Betz, president, L. D. Betz Co., Philadelphia, Pa.

"Cracking Plant Inspection" by E. M. Matson, Universal Oil Products Co., Chicago.

Alpine Acquires Bennett Plant

HOUSTON, Tex.—Alpine Refining Corp. of Houston, Tex., has acquired part of the properties of the Bennett Refining Co. of Houston. Included in the transfer of ownership is No. 1 refinery in Houston. The newly organized Texas company is headed by Albert E. Richel of Houston. Consideration in the sale was not revealed.

Shell to Build Laboratory

LOS ANGELES, Calif.—A $500,000 building and expansion program will be started immediately by Shell Development Co. in Emeryville, increasing the company's research and laboratory facilities to almost double present facilities, announced J. F. M. Taylor, president. Contract for the new building has been awarded to Lindgren and Swinerton, who a short time ago completed Shell's new 312-mile Bakersfield to Martinez pipe line. The undertaking will give employment to about 150 men, and will be completed March 1, 1938.

Kansas Plant Being Dismantled

Sonken-Galamba Supply Co., Kansas City, Kans., has purchased the Hutchinson, Kans., refinery of United Oil & Refining Co. and is dismantling the plant. The refinery was operated by Sunflower Refining Corp. under lease from United for some time, but in 1933 relinquished its lease. Since then the refinery has been shut down a great portion of the time. Daily capacity of the plant is about 1,500 bbls.

New Corpus Christi Refinery

HOUSTON, Tex.—Construction has begun on a new 4,000-bbl. topping plant for the Pontiac Refining Corp. at Corpus Christi, Tex. Contract for the construction and fabrication of the new refinery was let to the Mid-Continent Engineering Co. of Dallas.

The plant will be erected on the deep water channel from the main turning basin at Corpus Christi to the auxiliary turning basin at Avery Point. Pontiac Pipe Line Co.'s 4-inch, 15-mile line from the Saxet and Saxet Heights fields will supply crude to the plant. The company's storage on the site amounts to 75,000 bbls., and two 80,000-bbl. tanks will be built. Tanker loadings will be handled over the new oil dock being constructed for the Barnsdall Refining Co., which is erecting a 5,000-bbl. Dubbs cracking plant adjacent to the Pontiac site. Saul Singer is president and treasurer of the new company.

Dismantling P. and R. Refinery

Wood-Moore Corp., Tulsa, Okla., has purchased a large portion of the old Producers and Refiners Corp. refinery in West Tulsa and is dismantling the equipment bought to be moved to its Port Lavaca, Tex. refinery. Equipment purchased included a 6,000 bbl. Winkler-Koch pipe still and auxiliary equipment which will be used to increase the capacity of the Part Lavaca plant, present capacity of which is 2,000 bbls. daily. The purchase was made from Sonken-Galamba Supply Co., Kansas City, Kans., who recently acquired the entire refinery from Sinclair Refining Co. Mid-Continent Engineering Corp., Dallas, Tex., has charge of the new construction work at Port Lavaca.

Tanker Launching

The first large steamship built on the Great Lakes since 1930 will be launched at Manitowoc, Wis., September 18, the "Red Crown," a 465-foot tanker, built for Standard Oil Co. of Indiana. Mrs. C. J. Barkdull, wife of the executive vice president of the company, will christen the vessel.

Eunice-Milroy Wells

A big producer was near completion in the South Eunice area, Lea County, New Mexico, at Texas Pacific Coal & Oil Co. No. 5 State, C NE NE section 7-22-36. Plugs were drilled from 7-inch casing set at 3,759 feet, fluid was bailed down 800 feet and the well blew in, shooting a solid stream of oil over the derrick and cleaning itself before being shut in, according to field reports. Production was estimated at 20,000 to 25,000 bbls. daily.

Carter Oil Co. and associates No. 1 Harley, C NE NE section 24-2s-4w, deep pay discovery well in the Milroy area, Stephens County, Oklahoma, has been given tentative potential of 2,952 bbls. of oil daily, based on flow of 487 bbls. in four hours. Total depth is 8,157 feet.

Natural Gasoline

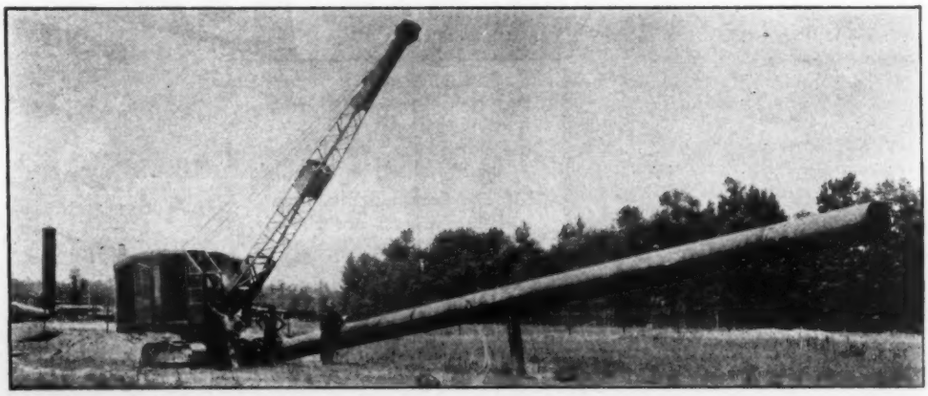
July Output Is New Year's High

Daily average production of natural gasoline continued to increase in July, according to the monthly report of the Bureau of Mines, the daily average being 5,593,000 gallons. This was 176,000 gallons above the June average and the highest average since January, 1931. The most notable increases in production during the month were in the Oklahoma City, Panhandle and East Texas fields; the increases being 69,000, 43,000 and 54,000 gallons daily. The East Texas field was the largest natural gasoline producer in the United States during July, having an output of 18,410,000 gallons for the month.

Although refinery consumption increased materially over June, exports were substantially lower. This decrease, combined with the gain in production, was reflected in stocks which increased to a new high for the year of 290,556,000 gallons, or 6,918,000 bbls. Stocks of naturals at this time last year amounted to 253,264,000 gallons.

Shipments to jobbers and retailers and exports in July totaled 16,086,000 gallons or 14,406,000 gallons less than in June, 1937. Most of this substantial decline was recorded in exports. The average vapor pressure of all major classes of shipments, except jobbers, declined in July. The weighted average vapor pressure of all shipments was 18.63 pounds as compared with 19.06 pounds in June.

ERECTING STACK AT PHILLIPS NEW LODI, TEXAS, PLANT



Hoisting a stack for residue gas flare at Phillips Petroleum Co's. 50,000,000-foot absorption plant on the Texas side of the Rodessa field. Construction of the plant, which will have a daily capacity of some 25,000 gallons of natural daily, was started early this year but was delayed for some time. It is now being rushed to completion. The plant will operate at well pressures.

NAME YOUR

FAIRBANKS MORSE 3 x 10"
FAIRBANKS MORSE 3½ x 10"
FAIRBANKS MORSE 4 x 10"
FAIRBANKS MORSE 4½ x 10"
FAIRBANKS MORSE 10 x 4½ x 10"
FAIRBANKS MORSE 5 x 10"
GARDNER DENVER AX 8 x 5 x 10"
GARDNER DENVER BB 8 x 6 x 10"
GARDNER DENVER AW or PC 8 x 7 x 10"
GARDNER DENVER AW or PC 8 x 8 x 10"
GARDNER DENVER ET 10 x 3 x 10"
GARDNER DENVER EXT 10 x 3 x 10"
GARDNER DENVER EC 10 x 2½ to 5 x 10"
GARDNER DENVER EW 10x3½ to 4½x10"
GARDNER DENVER 10 x 4 x 10 B.F."
GARDNER DENVER EE 10 x 4½ x 10 B.F."
GARDNER DENVER BB 10 x 5 to 7¼ x 10"
GARDNER DENVER 10 x 6 x 10"
GARDNER DENVER AW or PC
GARDNER DENVER
GARDNER DENVER ET 3 x 10"
GARDNER DENVER EXT 3 x 10"
GARDNER DENVER EC 2½ to 5 x 10"
GARDNER DENVER EE 5 to 7 x 10"
GARDNER DENVER 6 x 10"
GARDNER DENVER BB
GARDNER DENVER AW
GARDNER DENVER
GARDNER DENVER 7 x 4½ x 10"
GARDNER 10 x 4½ x 10"
IDEAL 10 x 3½ x 10"
WILSON SNYDER
WILSON SNYDER
WILSON SNYDER
U.S. PACKIN
BOILER FEED PUMP RINGS
FLUID END
To fit names and sizes of pumps listed on top.
SIZE B.F.R. 21
QUANT.
YLE 4480
IGHT 3½
United States Rubber Products, Inc.
MADE IN U.S.A.

● Note specimen label. These quickly and clearly indicate the name, size, and service of the correct U. S. Packing for your particular job. Other makes of pumps are shown on other labels.

PUMP *Mister!*

Correct style and size of packings for Boiler Feed, other small pumps and Drilling Engines now obtainable by method already proved successful with Rotary Packings

● It's foolproof—the oil industry has found it so—this common-sense way to get the right packing for the right place. And now it's been expanded to include small pumps, and drilling engines.

You know your pump name and size. That's all you need to know. That's all the man who goes to the supply store for you, needs to tell the supply man about—to come back with what you want. You don't have to worry about packing sizes or anything else.

Nobody will be upset now because the packing is wrong and the time has been lost.

The expanded "Labeled Service" plan now includes packing for all types and sizes of boiler feed and rotary pumps, small reciprocating pumps for refineries, gasoline plants, pipe line gathering pumps, drilling engines, etc. Also, several important sizes and names have been added for mud pumps and rotary swivels – the packings that made the plan famous. Again U. S. Rubber gives you

SERVICE BEYOND PRICE AND SPECIFICATIONS

Sold through conveniently located oil field supply stores

UNITED STATES RUBBER COMPANY US TRADE MARK

United States Rubber Company

United States Rubber Products, Inc., 1790 Broadway, New York, N. Y.

CONSERVATION

(Continued from Page 64)

head production varying only several million feet, the sweet gas keeping pace with the seasonal demand, and the sour gas production increasing from 383,695,000 feet in April, 1936, to 588,277,000 feet in June, 1937. No wide fluctuations in production have occurred since stripping ended and the commission ordered casinghead gas to be utilized where available.

The problem of gas waste has been solved by the issuance of orders covering disposal of gas and an ideal situation from the standpoint of prevention of waste has finally been reached in the Panhandle gas field. Every producer and operator has cooperated with the commission in eliminating gas wastage to the air. Operators are no longer asked the volume of gas they are "popping" to the air just to recover the gasoline, but are asked the minimum amount of gas necessary to release at each plant in order that an uninterrupted residue sale may be maintained. The improvement in this one phase of operation has prolonged the life of the field many years and will mean an ultimate recovery that could not have been expected otherwise. The gas going to the air in the Panhandle during June averaged 54,367,000 feet daily. By September this figure will be cut in half due to a change in disposition in Moore County. In a field handling one and three-fourths billion feet daily such a small waste figure is inconsequential.

Two charts are presented based upon statistics included in this report. Chart 3 shows the effect of the casinghead order on sour gas production and gas to the air and Chart 4 shows average daily disposition of dry and casinghead gas.

During January, 1936, only 39 per cent of the gas processed by gasoline plants was being delivered for the manufacture of carbon black and 39.7 per cent was going to the air. June, 1937, represents a different picture as 73.8 per cent was residue to carbon black plants and 4.9 per cent was going to the air as shown in Chart 5. These figures are for the 39 strictly natural gasoline extraction plants and do not include six plants which process pipe line light and fuel gas.

The locations of natural gasoline, carbon black plants and refineries are shown on the general map. There are 46 natural gasoline plants with a total capacity for treating 2,585,000,000 feet of gas daily. Of this total 1,990,000,000 feet is treated in natural gasoline plants handling gas direct from the wells, while the other 595,000,000 feet is handled in connection with pipe lines delivering the gas after processing to be used for light and fuel. There are 32 carbon black plants in the Panhandle district processing 850,356,000 feet of gas daily and six other plants outside of the district with a daily capacity of 132,525,000 feet.

The balance of the report deals with oil development and in the final chapter hydrogen sulfide and mercaptan tests are discussed and also a list of gas wells producing water in the entire Panhandle district is given. The water data are based upon the presence of water with the oil at the end of a 20-minute potential test period.

TABLE 2—PRESSURE ANALYSIS OF THE PANHANDLE AREA—JULY, 1937

East

R. P. classification	No. wells	%	M.C.F. potential	%	Acres	%
Below 150	51	13 0	321,775	4 7	17,249	6 3
150-199	46	11 7	279,723	4 1	23,019	8 4
200-249	118	30 0	2,374,525	34 9	50,323	18 4
250-299	149	37 9	3,475,259	51 2	67,075	24 6
300-349	20	5 1	335,581	4 9	49,887	18 4
350-399	4	1 0	9,860	.1	37,494	13 7
400 plus	5	1 3	6,647	.1	27,901	10 2
Total field	393	100 0	6,802,370	100 0	272,948	100 0
Wtd. avg. pressure (total acres)						283 84
Wtd. avg. pressure (proratable acres)						225 97

West

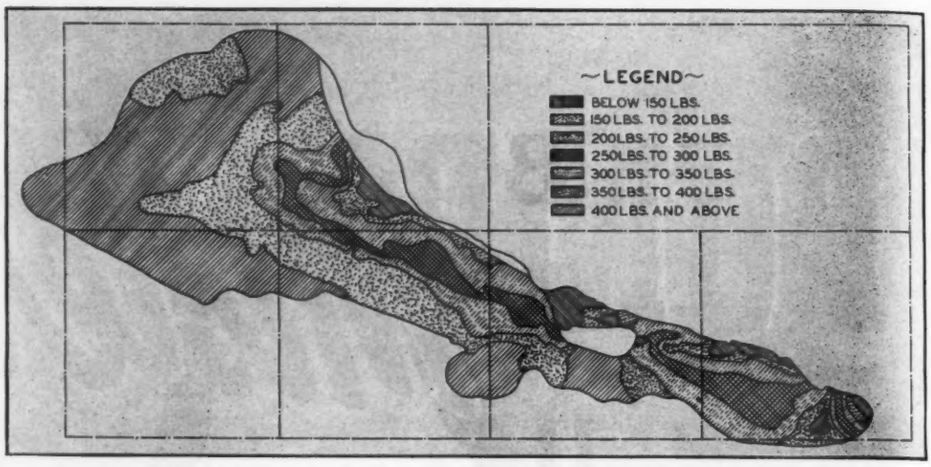
R. P. classification	No. wells	%	M.C.F. potential	%	Acres	%
Below 150	None					
150-199	34	5 4	214,152	2 1	4,723	6
200-249	149	23 9	2,040,999	20 1	36,607	4 6
250-299	117	18 8	1,769,122	17 4	67,502	8 6
300-349	63	10 1	943,535	9 3	73,492	9 4
350-399	179	28 7	4,123,272	40 6	249,726	31 8
400 plus	82	13 1	1,062,577	10 5	353,469	45 0
Total field	624	100 0	10,153,657	100 0	785,519	100 0
Wtd. avg. pressure (total acres)						369 90
Wtd. avg. pressure (proratable acres)						339 25

Sour

R. P. classification	No. wells	%	M.C.F. potential	%	Acres	%
Below 150	32	9 0	58,019	.8	15,605	4 0
150-199	66	18 5	439,363	6 4	26,363	6 7
200-249	81	22 7	790,967	11 4	44,411	11 3
250-299	16	4 5	162,892	2 4	10,842	2 8
300-349	23	6 4	375,436	5 4	20,104	5 1
350-399	96	26 9	3,519,689	50 9	86,577	22 2
400 plus	43	12 0	1,571,863	22 7	187,711	47 9
Total field	357	100 0	6,918,229	100 0	391,613	100 0
Wtd. avg. pressure (total acres)						345 28
Wtd. avg. pressure (proratable acres)						318 49

TOTAL PANHANDLE

R. P. classification	No. wells	%	M.C.F. potential	%	Acres	%
Below 150	83	6 1	379,794	1 6	32,854	2 3
150-199	146	10 6	932,238	3 9	54,105	3 7
200-249	348	25 3	5,206,491	21 8	131,341	9 1
250-299	282	20 5	5,407,273	22 6	145,419	10 0
300-349	106	7 7	1,654,552	6 9	143,483	9 9
350-399	279	20 3	7,652,821	32 1	373,797	25 8
400 plus	130	9 5	2,641,087	11 1	569,081	39 2
Total	1,374	100 0	23,874,256	100 0	1,450,080	100 0
Wtd. avg. pressure (total acres)						347 05
Wtd. avg. pressure (proratable acres)						319 47


~LEGEND~
BELOW 150 LBS.
150 LBS. TO 200 LBS.
200 LBS. TO 250 LBS.
250 LBS. TO 300 LBS.
300 LBS. TO 350 LBS.
350 LBS. TO 400 LBS.
400 LBS. AND ABOVE

Pressure contour map of Panhandle Gas field, July, 1937

TABLE 3—NATURAL GAS LINES FROM PANHANDLE GAS FIELDS, TEXAS

Company and localities served—	Handle daily (m.c.f.)	Gasoline extracted (gallons) Average per day 1936
Canadian River Gas Co.: Denver	54,565	15,708
Cities Service Gas Co.: Oklahoma, Kansas, Missouri and Nebraska	105,601	*30,624
Consolidated Gas Co.: Oklahoma	19,400	*5,335
Lone Star Gas Co.: Oklahoma and Central Texas	21,500	*5,870
Northern Texas Utilities Co.: Northern Texas	17,133	4,410
Northern Natural Gas Co.: Northern States	56,000	.....
Panhandle Eastern Gas Co.: Northern States	48,000	*14,400
Texoma Natural Gas Co.: Chicago, etc.	207,000	60,900
East Texas Gas Co.: West Texas	14,500	4,680
Total	543,699	141,927

*Estimated recovery.

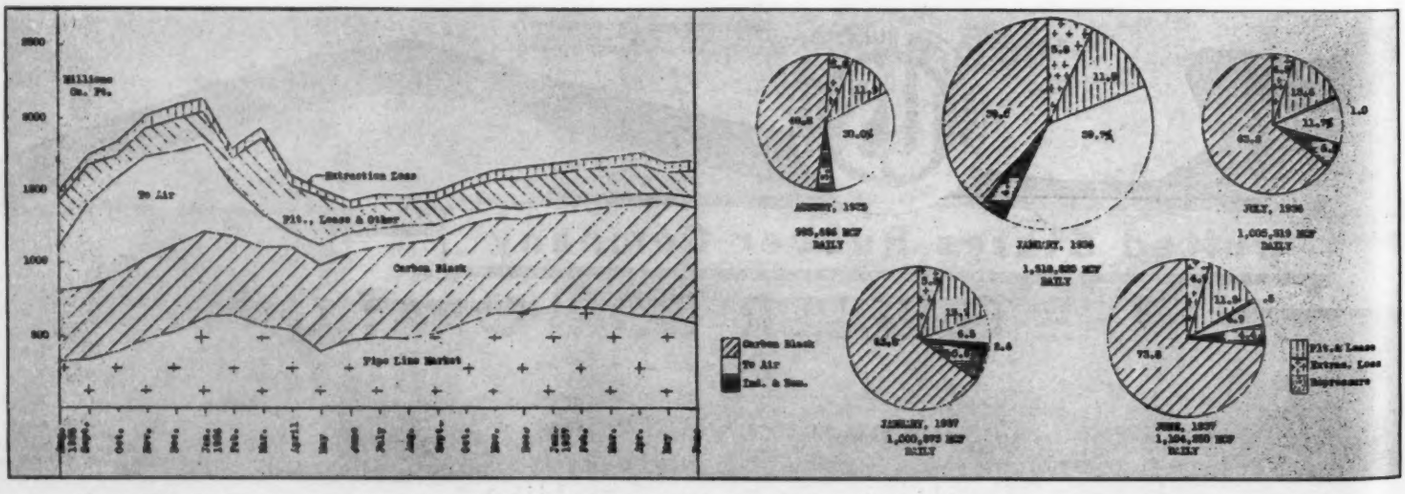


Chart IV. Daily average disposition of dry and casinghead gas. Chart V. Gasoline plant consumption and disposition

What is this GIRBOTOL PROCESS OF DESULPHURIZATION?

The Girbotol Process★ is the most *simple, effective* and *inexpensive* process yet developed for the removal of hydrogen sulphide from refinery and natural gases. Any desired degree of desulphurization can be achieved.

The Girbotol Process is ideally suited for the removal of H_2S from refinery gases before polymerization . . . *Moreover, the cost of purification is so low as to make the treatment of sour natural gas commercially desirable, even in those districts where gas prices are very low.*

If the presence of hydrogen sulphide presents any problems in connection with your refinery or natural gas operations, you should by all means have our new booklet describing the Girbotol Process. Write for a copy, today.

★*The Girbotol Process, a liquid purification process covering the use of certain reagents for the removal of Hydrogen Sulphide and other acidic gases from gaseous mixtures, is both broadly and specifically protected by U. S. Letters Patent Re. No. 18,958, and other U. S. and foreign Letters Patent, owned and licensed solely by The Girdler Corporation.*

THE GIRDLER CORPORATION

Incorporated

Gas Processes Division

LOUISVILLE • KENTUCKY

Oil News from Foreign Lands

Situation in Mexico

Settlement of the major points in the long-standing dispute between oil companies and Mexican labor appeared nearer this week when oil consumers protested to the government against a growing shortage of gasoline and other petroleum products occasioned by the disagreement and the government's failure to bring about the resumption of operations. Oil wells, refineries and pipe lines have been wholly or partially shut down as a result of the strike. It is estimated supplies reaching the heavier consuming district of Mexico have been less than 75 per cent of normal. This pressure from the consuming public represents a new factor in the situation.

It is reported from Mexico City that partly as a result of the increasing complaints from consumers pouring in on the government, representatives of Lazaro Cardenas, president of the Republic, opened separate negotiations with a leading oil organization designed to bring about immediate resumption of full-time operations. This organization, it is understood, agreed to take under consideration 14 demands made by strikers, which it had previously refused to do. The strike has seriously interfered with shipments of petroleum products from the field to Mexico City and vicinity, and a provisional settlement would make possible the replenishment of depleted stocks pending a final agreement.

The major foreign oil companies operating in Mexico, according to recent dispatches, were much more optimistic over an early settlement of the strike when they received word from the State Department in Washington that the United States "hoped" the so-called Morrow-Calles agreement of 1929 would be respected. The agreement guaranteed noninterference with the rights of American oil companies operating in Mexico. The expression of optimism regarding the agreement came from Josephus Daniels, ambassador to Mexico, who is quoted as having said, on his return to Mexico City early this month: "We would regret any disturbance of the status quo," and added that he hoped that there would be an adjustment of the conflict satisfactory to both the United States and Mexico.

Hearings on the experts' report which recommended wage increases, a shorter work week and social benefits for the industry's 18,000 employes ended on September 6. Members of the Federal Board of Conciliation and Arbitration, which conducted the hearings, left by airplane for a three-day inspection tour of oil regions. The board's decision was expected to be announced shortly, but had not been forthcoming at this writing.

Japanese Imports

Japan is dependent on imports for its petroleum requirements approximately 80 per cent. Heavy fuel oil makes up a large part of Japan's import petroleum trade, but nearly 50 per cent of its gasoline requirements are shipped to that country in finished form. Only a small part of Japan's total gasoline last year amounting to more than 8,100,000 bbls. was derived from domestic crude.

Out of approximately 22,193,210 bbls. of petroleum products figuring in Japanese trade during 1936 only 2,366,292 bbls. came directly from domestic crude. The country has taken steps to establish sufficiency in refining capacity. In addition to the 2,366,292 bbls. of products derived from domestic crude in 1936, Japan recovered 6,420,049 bbls. of various petroleum products from foreign crude processed within the country. Domestic production and the nation's refining activity left a total of 13,406,869 bbls. of products imported chiefly from the United States. Of the total finished products imported, 4,356,094 bbls. consisted of gasoline and 8,024,745 bbls. of heavy fuel oil. Most of the heavy fuel oil came from California.

The following figures are exclusive of imports direct to the Japanese government:

JAPAN'S 1936 PETROLEUM TRADE

(Includes Chosen and Taiwan)

(Figures in barrels)

Products	From Domestic Crude	From Foreign Crude	Direct Imports
Gasoline	538,063	3,884,175	4,356,094
Krosene	277,924	588,927	571,516
Neutral Oil	311,849	631,108	50,191
Machine Oil	410,414	1,128,122	404,323
Heavy Fuel Oil	828,042	187,717	8,024,745
Totals	2,366,292	6,420,049	13,406,869

Venezuelan Oil Production

Crude oil production in Venezuela during August registered a new all-time monthly record of 17,092,561 bbls., a daily average of 551,373 bbls., compared with the previous record of 16,306,312 bbls., or 526,010 bbls. daily, in July. Principal gains were in the Lake Maracaibo oil fields, and notably Tia Juana, which recorded a production of 2,576,798 bbls. in August, against 1,113,000 bbls. in July and none in August a year ago.

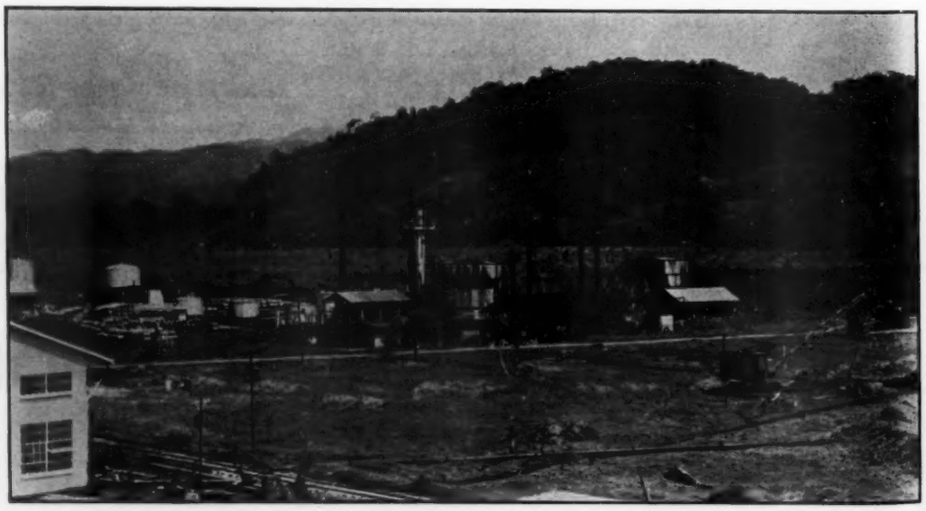
Outside of the Maracaibo Lake district, production continued on about the same basis as in July. In comparing production for August with that for the same month of 1936, it is noted that output of all the major fields increased substantially with the exception of the Mene Grande field, which showed a decrease. Output of this field amounted to 1,282,130 bbls., against 1,476,900 bbls. in August, 1936.

The Lake Maracaibo fields (Lagunillas-LaRosa-Tia Juana) produced 12,673,464 bbls. of crude oil in August this year, or approximately 73 per cent of Venezuela's total output. This compares with 9,209,523 bbls., or 68 per cent of the total, in August of last year. The eastern Venezuelan fields, Quiriquire and Pedernales, yielded 2,383,506 bbls. compared with 2,100,928 bbls. in August, 1936. No marketed production is recorded for the southern part of eastern Venezuela, although a number of producing wells have been completed in the Oficina-El Salto-Temblador area in the states of Anzoatgui and Monogas. It is believed these new fields will figure in the Venezuelan production column some time next year.

Lago Petroleum Corp. continued to lead individual companies in oil production, with a record monthly total for August of 5,777,226 bbls., a daily average of 186,362 bbls. Including Creole production, Standard Oil of New Jersey subsidiaries in Venezuela produced a total of 8,765,934 bbls., or 282,772 daily. The Royal Dutch-Shell group, including Venezuelan Oil Concessions, Ltd., Caribbean Petroleum Co., Ltd., and Colon Development Co., Ltd., produced in the aggregate 5,950,892 bbls., a daily average of 71,966 bbls. Mene Grande Oil Co., subsidiary of the Gulf Oil Corp., registered a production of 2,266,000 bbls., a daily average of 73,097 bbls.

The production statistics for the past month compared with a year ago are shown in the following table (figures in barrels):

Field—	August, 1937	August, 1936	Daily average August, 1937
Lagunillas	7,912,219	7,447,510	255,233
Quiriquire	2,238,362	2,100,928	72,205
La Rosa	2,184,447	1,762,013	70,466
Mene Grande	1,282,130	1,476,900	41,358
Tia Juana	2,576,798	.....	83,122
Tarra	376,798	346,800	12,142
Pedernales	145,144	.....	4,682
Concepcion	90,320	92,400	2,913
Cumarebo	221,377	219,148	7,142
El Mene	54,281	79,670	1,752
La Paz	11,077	12,700	358
Total	17,092,561	13,538,049	551,373
Company—			
Lago Petroleum Corp.	5,777,226	4,539,212	186,362
Venezuelan Oil Concessions, Ltd.	4,292,446	3,125,900	138,466
Standard of Venezuela	2,988,708	2,675,780	96,410
Caribbean Petroleum Co., Ltd.	1,282,130	1,476,900	41,358
Colon Development Co., Ltd.	376,406	346,800	12,142
Mene Grande Oil Co., Ltd.	2,266,000	1,239,000	73,097
British Controlled Oilfields	54,281	79,670	1,752
North Venezuelan Petroleum Co., Ltd.	55,364	54,787	1,786
Total	17,092,561	13,538,049	551,373

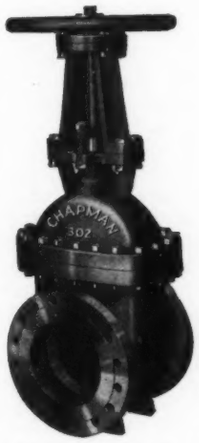


Clearing and grading behind Standard Oil Co. of Venezuela's refinery at Caripito to provide location for a tank farm

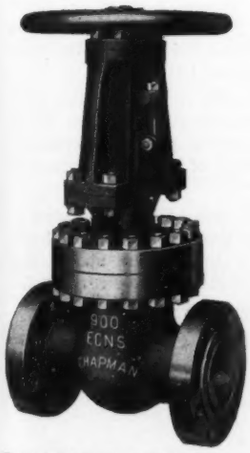
BIG NAMES

IN PIPE LINE TRANSPORTATION

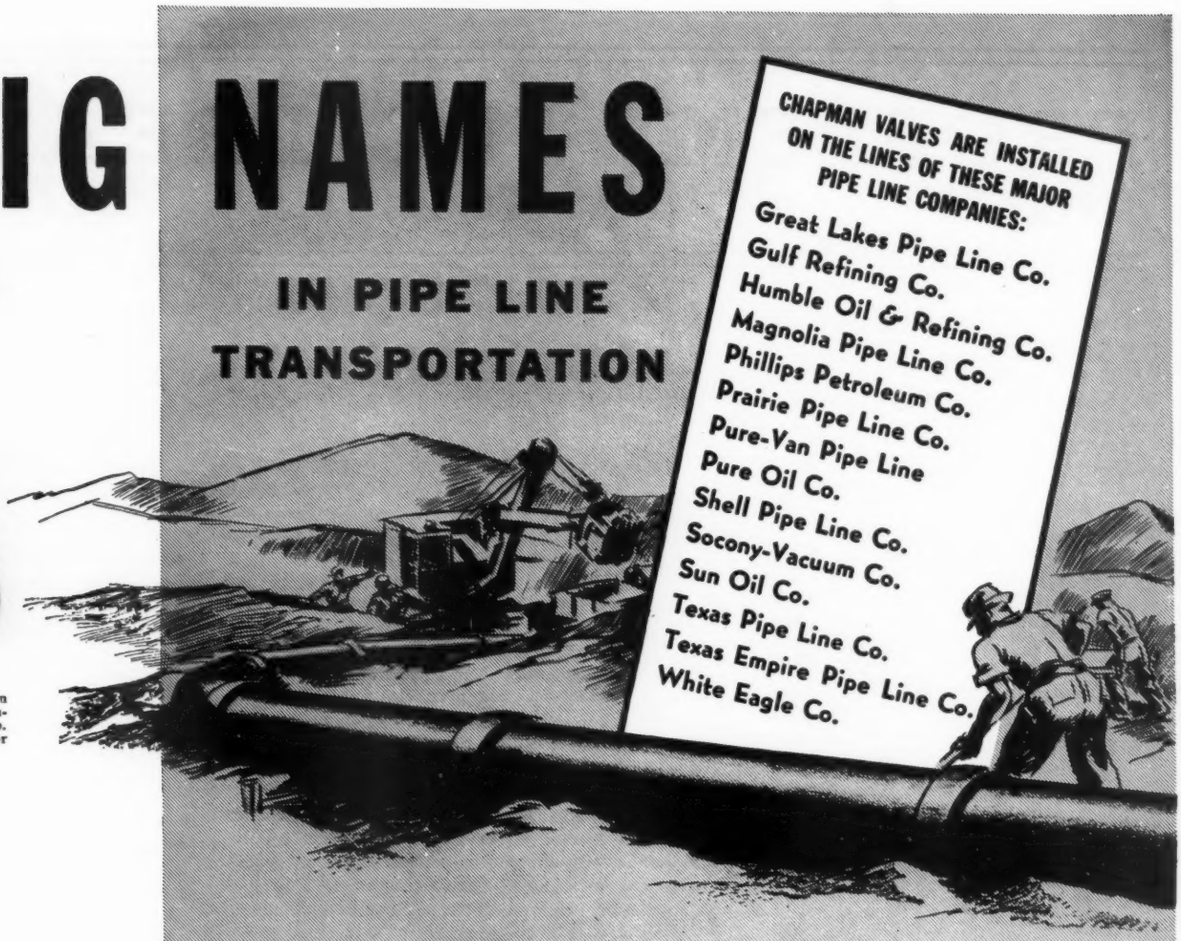
List 106-A, Rising Spindle. An iron body, bronze mounted, double disc gate valve. 800 lb. working pressure on oil, gas or water.



List 302, Stationary Spindle. An iron body, bronze mounted, bronze stem, double disc, parallel seat gate valve. 500 lb. working pressure on oil, gas or water.



Solid Wedge Steel Gate Valve. 900 lb. working pressure, steam or hot oil. 1650 lb. cold working pressure.


CHAPMAN VALVES ARE INSTALLED ON THE LINES OF THESE MAJOR PIPE LINE COMPANIES:
Great Lakes Pipe Line Co.
Gulf Refining Co.
Humble Oil & Refining Co.
Magnolia Pipe Line Co.
Phillips Petroleum Co.
Prairie Pipe Line Co.
Pure-Van Pipe Line
Pure Oil Co.
Shell Pipe Line Co.
Socony-Vacuum Co.
Sun Oil Co.
Texas Pipe Line Co.
Texas Empire Pipe Line Co.
White Eagle Co.

turn to CHAPMAN

THE BIG NAME IN VALVES

Today's arterial metal highways for oil and gas are subject to hard-and-fast traffic rules —"stop" and "go," at command. There can be no jam, no delays.

And to preserve these rules, many of the country's major pipe line systems keep Chapman Valves in control of traffic. For Chapman Valves stay on the job 24 hours a day, year after year, with never the slightest delinquence in duty.

Operators turn to Chapman's complete line for all requirements in pipe line valves . . . including the three valves shown. All types and sizes required are always in stock at convenient points. Deliveries are prompt. For rates and prices, get in touch with the nearest Chapman office. Atlanta, Boston, Chicago, Cleveland, Denver, Detroit, Houston, Los Angeles, New York, Philadelphia, Pittsburgh, St. Louis, Salt Lake City, San Francisco, Syracuse, Tulsa.

The CHAPMAN VALVE MANUFACTURING COMPANY

INDIAN ORCHARD, MASSACHUSETTS

PROBLEMS FROM READERS

Edited by L. G. E. Bignell

Crude Oil Prices for Past 10 Years

I am taking a correspondence course in petroleum engineering and need a record of crude oil prices over the preceding 10 years. I do not know just where to find this information but thought you might be able to help me.—R. W. E.

If you will refer to the Annual Numbers of The Oil and Gas Journal, published at the first of each year, you can find crude oil prices listed in each issue for the preceding year.

You do not state the particular crude oil price you are interested in, but you will find all the quoted prices in the Annual Numbers and from same can select those of interest to you.

Rod Line Intermitters

What progress has been made in devising rod line intermitters which function in such a manner that the number of strokes of a pumping jack may be automatically regulated?—T. M. G.

The following is part of a letter from the inventor of a rod-line intermitter or well-stroke timer:

"Some time previous to the depression it became apparent to myself and others experienced in producing stripper wells that the lifting cost per barrel on such type leases was entirely too high, and if these leases were to be preserved until such a time as crude and material prices would warrant the application of improved secondary recovering methods, something had to be done about it. With this in mind I began to consider the matter and what might be done. After some research I concluded the most expensive item on this type of lease was the pumper himself, because of the small amount of production per well and the necessity of the pumper being present at the power at intervals to hook on and hook off each individual well. It did not take a great deal of concentration to realize there was nothing much to be done with reference to increasing the production per well except through the application of scientific secondary recovery methods, which in most cases was not economically possible with the price of crude and materials. It was also plain there was nothing to be done about the excessive amount of time and attention on the part of the pumper necessary in the hooking on and hooking off of wells so long as his equipment remained the same as usually used on this type of lease. It was positive that if this excessive phase of time and attention was to be reduced, some new equipment would have to be added and that the cost of such equipment would have to be low, otherwise the interest charge on the additional investment would eliminate any saving in operating cost.

"In attempting to find some method of reducing these operations to a more automatic basis, it occurred to me that the first thing to be done was to devise some means of synchronizing all wells on the same power so they would begin pumping at the same time and finish at the same time, regardless of the differences in the amount of fluid each produced. In other words, there had to be one way of accomplishing a change of paces on each well, independent of, and regardless of the pumping rate of speed of any other well connected to the same power. About the time I was considering this matter, slow-motion pumping was being discussed and applied in California for the purpose of maintaining constant fluid levels in order to increase productions per well. After some investigation of these California methods, I found they were not applicable to most Mid-Continent and eastern areas because the slowing was done both on the up and down stroke of the bottom-hole pumping equipment. This was not applicable to the Mid-Continent and eastern crudes because of the differences in viscosities of the oil. Any slowing down on the up stroke where light gravity oils are being handled would cause a slippage of fluid past the traveling valve cups. It, therefore, became apparent it was necessary to devise some means of accomplishing a change of paces by using a slowing down process on the down stroke only, if we were to make it possible to synchronize all wells.

"A friend of mine and myself conceived an idea of doing this with a hydraulic cylinder, to which was attached a movable automatic latch, which automatically unhooked the well completely from the power eccentric at the top of each up stroke and automatically hooked it on again at the bottom of the complete down stroke. This instrument is installed in each rod line at the point in the rod line ordinarily occupied by the hook off post and itself can be used as a hook off instead of present dangerous equipment. This hydraulic cylinder is filled with any antifreeze solution, not subject to change of viscosity by reason of temperature, and the pumping speed of the well is controlled by by-passing this fluid from one end of the cylinder to the other and the rate of by-passing governed by a globe valve or orifice plate. With this experimental instrument we were able to cause a well to require 45 minutes to drop back an ordinary 18-inch stroke and at the same time maintain an up-lifting stroke rate of 12 strokes per minute.

"You will observe from this experiment that any well which would ordinarily require 10 to 15 minutes to pump can be made to pump a full 24-hour period, if desired, and therefore, that all wells on the same power can be synchronized to this or any other desired pumping period. It seems to me, once all wells on a power can be made to pump for a full 24-hour period or all wells commence pumping at the same time and be ready to shut down at the same time, that we have gone a long way in accomplishing our purpose of making these leases almost automatic, for if the governors on the engine are in proper shape and our engines are equipped with force-feed oilers, there is little to require a pumper's attention except breakage, which is very small once equipment is put in proper shape. In our experiment with this instrument we found other advantages to be gained. We found that by maintaining the constant fluid level at any desired given point, which is accomplished by the same operation, that productions in many cases would be increased. This should be particularly so where repressuring methods are being used or where wells will not make up their production after standing two or three days. It is also likely that rod pulling expenses may be reduced by the same operation for the reason that if a well is properly timed it will not take a stroke, except when there is sufficient fluid above the desired fluid level to fill the maximum space between the traveling valve and standing valve, therefore the cups are submerged in fluid at all times, which should reduce wear on travel valve cups."

How Much Gas Will Escape From Tank?

How many cubic feet of gas could be metered out of a tank containing 100 cubic feet inside measurement, after filling it with gas to 200 pounds pressure, gas to be metered out at 8-ounce pressure?—J. McG.

As we understand the question a tank with 100 cubic foot capacity is filled with natural gas until the gauge pressure is 200 pounds per square inch. This gas is then allowed to escape against a back pressure regulator into a pipe line system operated at 8-ounce pressure. You desire to know the volume of gas that can be put into and taken out of the tank under these conditions.

To first determine the volume of natural gas at 60° F. and .60 specific gravity and at sea level add to 200 pounds the atmospheric pressure of 14.4 which equals 214.4 pounds. Divide this number by 14.4 pounds and the multiplier obtained is 14.88888 or the number of cubic feet of gas compressed to 200 pounds that will occupy 1 cubic foot. In the 100 cubic foot tank there will be 1,488.888 cubic feet of gas when it is filled to 200 pounds pressure.

The gas is then allowed to escape until the pressure within the tank is 8 ounces or one-half pound above atmospheric pressure or 14.9 pounds. Divide that number by atmospheric pressure of 14.4 and a multiplier of 1.03472 is obtained and multiply that number by 100 cubic feet, the tank size, and it is found that 103.472 cubic feet of gas will remain when the gauge pressure is down to 8 ounces.

Substract 103.472 cubic feet from 1,488.888 cubic feet and the gas escaping to the pipe line system is 1,385.416 cubic feet under the above standard conditions of temperature, specific gravity and altitude.

If the temperature changes from 60° F. there will be a change of approximately 1 per cent in volume of the gas for each 5 degrees of temperature change above or below 60° F.

If there is a change in the elevation of the tank, that is if the tank is located at some point above sea level, use the barometric pressure expressed in pounds for the location of the tank instead of 14.4 pounds.

For instance, if this tank had been located at Denver, Colo., or 1 mile above sea level, the barometric pressure would have been about 12.3 pounds. The formula would then have read as follows with pressure change made:

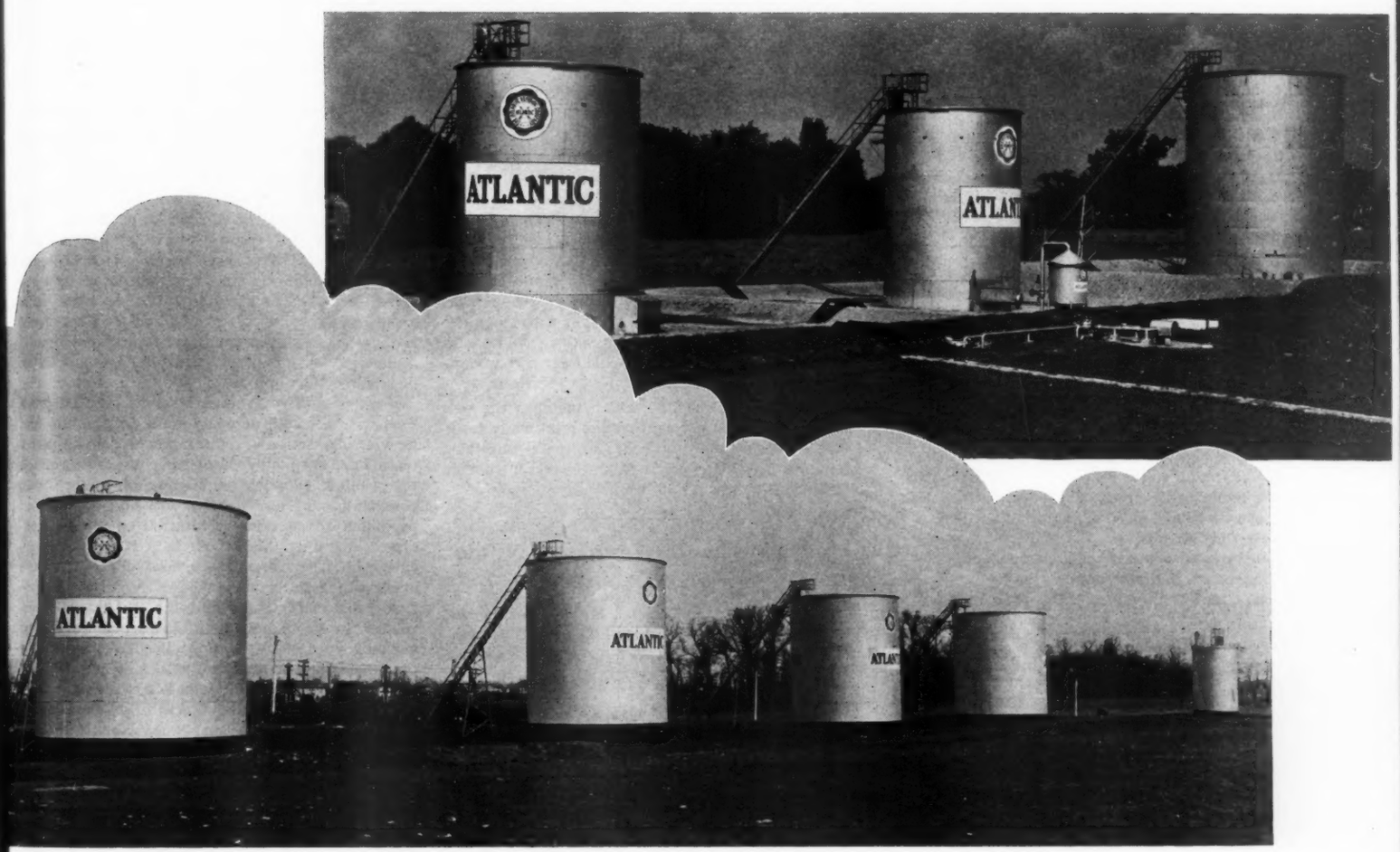
$$Q = 100 \times \frac{12.3 + 200}{12.3} = 1726.01 \text{ cu. ft.}$$

At 8-ounce pressure—

$$Q = 100 \times \frac{12.3 + .5}{12.3} = 104.91 \text{ cu. ft.}$$

Gas discharged from tank, 1621.10 cu. ft.

Modern Pipe Lines *plus* Wiggins Pontoon Roof Tanks



IT'S hard to beat the advantages of a motor fuel distribution system that includes well-planned pipe lines in combination with Wiggins Pontoon Roof Tanks at terminals and at bulk stations along the line.

No small measure of the success of modern pipe lines can be credited to the progressiveness of the engineers in capitalizing on latest scientific methods and equipment. And it is only natural that this has resulted in widespread utilization of Wiggins Pontoon Roofs as well as other Horton vapor saving equipment.

In Wiggins Pontoon Roofs, distribution experts have found the key to both flexible and efficient operation. Tanks can be filled and emptied as often or as seldom as any schedule may require with complete assurance that the oil handled will continually be guarded and protected against evaporation and deterioration. Similarly, whether the tank is full, or nearly empty, matters not. This versatile performance is maintained for all grades of motor fuel or other oil products that do not boil at ordinary atmospheric temperatures.

For information or quotations, address our nearest office. Ask about latest developments in equipment for stopping evaporation losses.

DALLAS	1441 Liberty Bank Bldg.	CHICAGO	2128 Old Colony Building	PHILADELPHIA	1615-1700 Walnut St. Bldg.
HOUSTON	2919 Main Street	DETROIT	514 Lafayette Building	BOSTON	1517 Consolidated Gas Building
TULSA	1606 Hunt Building	CLEVELAND	2204 Rockefeller Building	SAN FRANCISCO	1054 Rialto Building
BIRMINGHAM	1536 North Fiftieth Street	NEW YORK	3347-165 Broadway Building	LOS ANGELES	1423 Wm. Fox Building

QUESTIONS ON TECHNOLOGY

By Charles K. Francis, Ph.D., Technical Editor

Petroleum Oils for Antifreeze Circulating Liquid for Automobiles

Would a petroleum oil flashing at 300° F. with cold test of 20 degrees below zero and viscosity 85 to 100 be suitable for an antifreeze circulating liquid in automobiles? With a specially vulcanized oil hose, why could not such a product be used to advantage? There would be no corrosion and no doubt the flash would be high enough to be safe.—G. F. F.

Petroleum products, similar to the one described, have been used as circulating liquids for cooling automobile engines. The chief objections to these have been the difficulty in obtaining a uniform product of fixed boiling point and the tendency of petroleum liquids to cause leaks. Petroleum products may decompose to some extent when passing through the engine block and the resulting cracked products are especially objectionable because of the formation of volatile compounds and if sulfur is present corrosive substances are liable to be produced. It has been found, by those who have experimented with petroleum liquids for this purpose, that the petroleum liquids tend to soften and decompose rubber in the hose connections and also act on the gaskets, with the result that troublesome leaks appear.

Process for Obtaining Gasoline and Its Distinguishing Properties

Will you kindly furnish an explanation for a layman of the methods for production together with the various gasoline ratings for octane etc.? What has come to my attention is so highly technical that I find it difficult to understand.—R. B.

Petroleum is a complex mixture of hydrocarbons, compounds of carbon and hydrogen, from which the various commercial products are, in the main, obtained by the process of distillation. The distillates are groups of compounds. Those first obtained constitute the product gasoline, which cannot be described by definite physical and chemical properties, like salt, sugar or alcohol, because it is a mixture. Pure salt, sugar and alcohol may be quite accurately defined by means of such properties as specific gravity, melting point, boiling point, solubility, etc. Gasoline is so complex that the industry has found it convenient to describe it according to such properties as gravity (easily converted to specific gravity) as determined by the A.P.I. hydrometer, volatility, as found by the distillation temperatures, and purity, as indicated by the absence of water, acid, solid substances, quantity of sulfur, and octane rating.

There are two additional sources of gasoline: (1) Some natural gas contains gasoline from which it is extracted by (a) absorption and adsorption; (b) compression; (c) cooling. These are frequently combined. (2) The cracking process yields a large portion of the motor gasoline. This process consists in subjecting a heavy oil, containing no gasoline, to high temperatures while under pressure. This treatment causes the large nonvolatile molecules to be broken, cracked, into smaller ones which are the volatile gasoline hydrocarbons. They are purified by distillation and chemical treatment in a similar way as those separated from the crude oil.

All of the properties mentioned are apparently well understood, with the exception of octane rating. Gravities may range from 54° to 70° A.P.I. for refinery gasoline and to 85° for natural gasoline. The important distillation temperature used in trade quotations is endpoint, final boiling point, which may vary from 350° to 437° F. The quantity of sulfur, permitted in the standard specifications, is a maximum of 0.10 per cent. The octane rating may be 60 and below for the low grade gasoline and 76 or more for the highest priced product. Octane rating is obtained by trial in a test engine; comparing the knock intensity of the gasoline with that of prepared mixtures which contain various percentages of octane.

A sample of gasoline which matches the performance of a 60 per cent octane mixture is designated "60 octane number gasoline"; one that matches a solution containing 76 per cent octane is graded 76 octane number.

Investigation on Petroleum by the Mellon Institute

Do you have any information which shows the kind of work done on petroleum refining by the Mellon Institute? Is it true that the Institute has obtained patents covering cracking?—F. S. T.

Research in petroleum refining has been continuous at the Mellon Institute since 1911, there having been 65 trained investigators engaged during the period of more than 25 years in studying the chemistry and technology of petroleum.

A report by Dr. E. R. Weidlein, the director, to the trustees of the institution, appeared in Industrial and Engineering Chemistry, from which the information given here has been extracted.

The research has covered a wide range of problems, including nearly all types of petroleum products and nearly all the ways in which petroleum is used. One of the first was the conversion of heavy oils into gasoline by cracking, and patent applications were filed as early as 1912. From the same period dates the important work on the fluorescent compounds in petroleum. Other topics investigated include: Wax manufacture, asphalts, composition of cracked gasoline, chemical nature of oxidizable and gum-forming hydrocarbons in cracked gasoline, nature of sulfur compounds in gasoline and heavier oils, action of aluminum chloride on petroleum oils, chemistry of olefinic gases as related to gasoline, chemical stabilizing of motor fuels, constitution of high-boiling oils, and a range of problems on deposits in internal combustion engines, including those from both fuels and lubricating oil; the work on "carbon" deposits, which started in 1925, established for the first time reproducible methods for studying carbons, and correlated the kinds and amounts of deposits with the various types of lubricating oils. Investigation of the chemistry of cracked gasolines has yielded much highly valuable information, which has been influential in developing successful practical methods for protecting these gasolines against deterioration during storage and use.

Reference: Ind. Eng. Chem., News Ed.; 15, 143, 1937.

CHEMICALS FOR THE PETROLEUM INDUSTRY

Benzene or Benzol

Industrial 90% Benzol

Use—Solvent, knock inhibitor, lubricating oils solvent extraction.

Form—Colorless liquid.

Odor—Pleasant aromatic.

Formula—C_6H_6.

Specific gravity—0.879 @ 68° F.

Melting point °F.—42.

Flash point °F.—5 (highly inflammable).

Boiling point °F.—176.

LIMITATIONS

Color, min.	21 Saybolt
Distillation—	
I.B.P. min. °F.	173
90% point	212
Endpoint, max.	248
Acidity	none
Specific gravity, between 0.875 and 0.886 at 60° F.	
Sulfur compounds as H_2S and SO_2	none
Corrosion, copper test	negative

Note—There are several grades of benzene, a very pure form should distill within 1° C. of the true boiling point 80.2° C.

Retail Price of Gasoline in Great Britain Since 1932

Will you please furnish the retail price paid for gasoline during the past five years in England, especially London?—L. H.

Including the price set in September, 1932, there have been nine changes during the past five years in the retail price of gasoline in Great Britain. The figures in the table include an import tax of 8d (16 cents), which has not fluctuated during the period.

RETAIL PRICE OF GASOLINE IN ENGLAND PER IMPERIAL GALLON

1932—1937

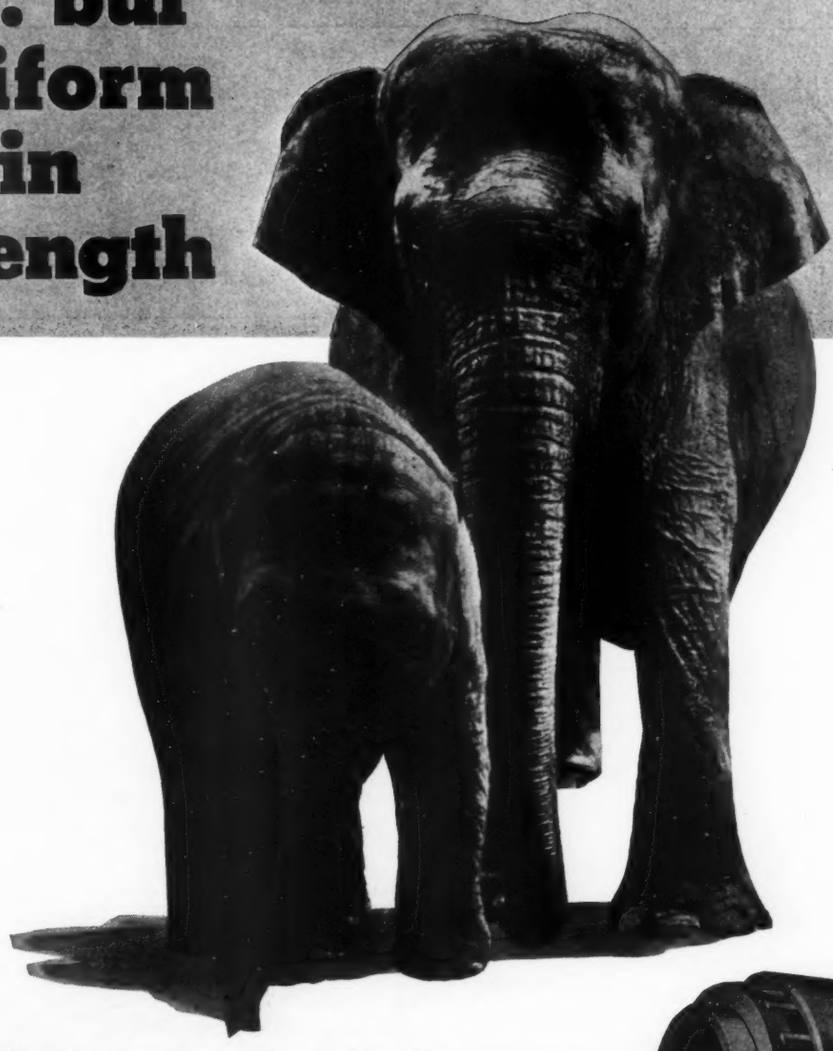
Date—	British s.	British d.	U.S. cents
September 14, 1932	1	7½	40
May 17, 1933	1	5	35
November 3, 1933	1	6	37
March 22, 1934	1	5	35
May 1, 1935	1	6	37
January 13, 1937	1	6½	38
February 11, 1937	1	7	39
April 26, 1937	1	7½	40
July 29, 1937	1	7	39

The United States equivalents are approximate. The Imperial gallon is equivalent to 277.4 cubic inches or 1.201 U. S. gallons of 231 cubic inches.

Questions on Petroleum Technology may be sent to Dr. Charles K. Francis, The Oil and Gas Journal, Tulsa, Okla. When a copy of the answer is desired postage should be enclosed.

VARIED IN SIZE

. . . but uniform in strength

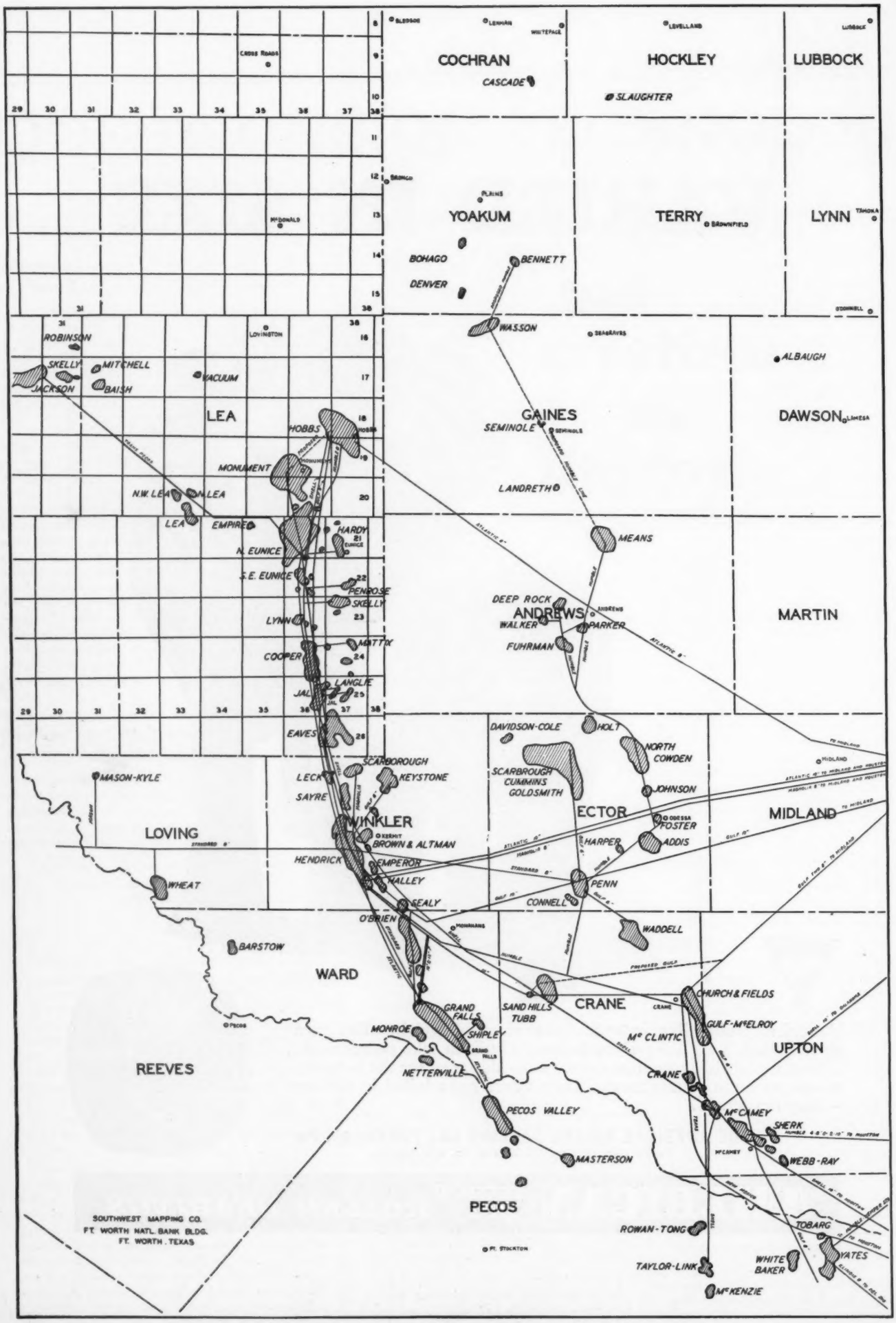


American Roller Bearings vary as to size and weight. But even the smallest is a Heavy-Duty bearing—built to take punishment. These are oil-field bearings, remember—designed for the industry where strength counts most. They never have failed in service —they never will.

THE AMERICAN ROLLER BEARING CO., Pittsburgh, Pa

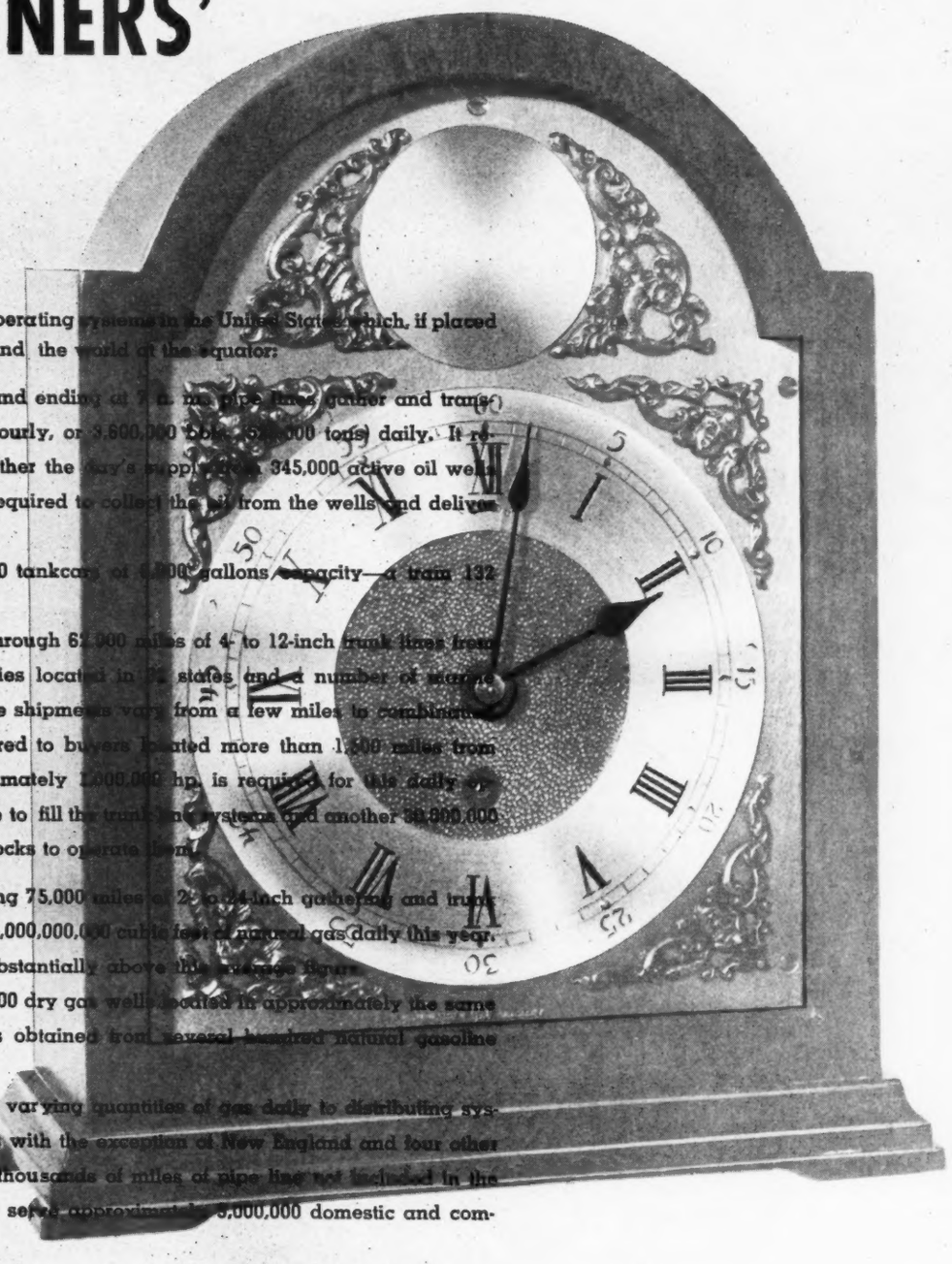
Pacific Coast Office: 321 W. Pico St., Los Angeles

AMERICAN *HEAVY DUTY* **ROLLER BEARINGS**



Principal trunk pipe lines serving New Mexico and West Texas oil fields

THE PIPE LINERS' 24 HOURS



HERE is the pipe liners' day in operating systems in the United States which, if placed end to end, would extend eight times around the world at the equator:

CRUDE OIL.—Continuously, starting and ending at 7 a. m., pipe lines gather and transport crude oil at the rate of 150,000 bbls. hourly, or 3,600,000 bbls. (504,000 tons) daily. It requires 50,000 miles of 2- to 8-inch lines to gather the day's supply from 345,000 active oil wells in 20 states. An estimated 178,000-hp. is required to collect the oil from the wells and deliver it to the main trunk line stations.

One day's shipments would fill 20,000 tankcars of 8,000 gallons capacity—a train 132 miles long.

Crude flows steadily day and night through 61,000 miles of 4- to 12-inch trunk lines from gathering stations to 475 operating refineries located in 22 states and a number of marine terminals at coastal points. These trunk line shipments vary from a few miles to combination operations in which the crude oil is delivered to buyers located more than 1,500 miles from the fields where it was produced. Approximately 2,000,000 hp. is required for this daily operation. It requires 21,000,000 bbls. of crude to fill the trunk line systems and another 30,000,000 bbls. in tanks along the lines as working stocks to operate them.

NATURAL GAS.—Companies operating 75,000 miles of 2- to 24-inch gathering and trunk line systems will transport an average of 6,000,000,000 cubic feet of natural gas daily this year. Peak loads of the winter months will be substantially above this average figure.

This gas, in part, is gathered from 55,000 dry gas wells located in approximately the same areas as the oil fields. The remainder is obtained from several hundred natural gasoline plants as residue gas.

The high-pressure trunk lines deliver varying quantities of gas daily to distributing systems which now are found in all the states with the exception of New England and four other states. These distributing systems require thousands of miles of pipe line not included in the figure on trunk and gathering lines. They serve approximately 5,000,000 domestic and commercial consumers.

MOTOR FUEL.—Transportation of motor fuels by pipe lines has increased steadily so that 130,000 bbls. (5,460,000 gallons) daily leave 20 refineries located in the Mid-Continent, Middle West and East Coast areas. These daily shipments, representing about 8 per cent of the total motor fuel supply, are handled in 10 major systems operating 4,900 miles of 6- to 10-inch lines. A total of 18,250 hp. is required to move this gasoline.

NATURAL GASOLINE.—Natural gasoline manufacturers keep in daily operation 12,000 to 15,000 miles of 2- to 24-inch pipe lines. These lines are used in part to gather 5,500,000,000 cubic feet daily, or more than 2,000,000,000,000 cubic feet yearly of casinghead gas from a large majority of the producing oil wells, for delivery to 710 natural gasoline plants located in 18 states. The gathering systems also include natural gas wells, the gas from which contains a small fraction of gasoline. A substantial part of the total pipe line mileage is used to deliver the residue gas back to the fields. Several hundred miles of pipe line are used to transport the daily natural gasoline production (including butane) of 128,500 bbls. (5,400,000 gallons) to loading racks, refineries and terminals.

Arc-welding a half-sole

Modern Methods in Recondition

One of the largest pipe line reconditioning programs in the industry has now been under way for about six years, and it offers many examples of the most advanced technique developed for this type of repair work to crude oil lines operating under pressure.

The Standard Oil Co. of Louisiana, pipe line division, operates an 8-10-12-inch looped system through Louisiana to its Baton Rouge refinery, which is fed by the Oklahoma system and the Van-East Texas lines from affiliated companies, together with its own gathering or feeder lines from the Arkansas and North Louisiana oil fields.

The first lines were laid in 1909. Later these were stripped, raised, concrete forms built around them, and fully covered with concrete protective blocks, which for the most part are still in service. A few have cracked and have required some repair, but the remainder are still intact.

Additional lines in the system were laid in 1912 and 1923. A considerable amount of second-hand pipe was used in this enlargement program, and until the present reconditioning project they have received no general repair, and only minor repairs given by line walkers or by emergency crews. The present reconditioning campaign is not affecting the two 8-inch lines with early concrete protection; only the 8-, 10- and 12-inch lines which are merged or looped between booster stations are being worked over.

This work has consisted of uncovering, stripping, raising, cleaning, inspecting, welding, patching, half-soling, sleeving, plaster and pit welding, coating, wrapping, recoating, lowering, and backfilling. The entire system is to be so repaired, but crews have been moving up and down the lines in order to work sections which are known to be in the worst condition first.

All operations have been carried on while lines were in service and under full load and pressure. There have been no losses in revenue or refinery production. Experience has shown that repair work under such conditions presents no additional hazards, except possibly fires resulting from leaky pits, weak joints, pull-aparts, or faulty couplings. Careful inspection before welding makes such hazards negligible. A very commendable safety record in all types of work along this pipe line has been established.

Trained crews, each under competent foremen, have one particular job to do, and wherever possible they follow in systematic rotation. Climatic or topographical conditions may cause one type of work to get ahead or behind the others. When this occurs, crews are switched to other parallel lines and only a minimum amount of time is lost.

The heavy-duty bucket-type ditcher is used for uncovering the lines, usually buried about 36 inches deep in this type of territory. Some ditchers have an adapter which permits them to more fully strip the lines along top and the sides, rather than just remove the overburden down to the approximate top of the pipe. They are also much easier on the collars. It is often necessary to send a stripping gang with shovels, following the ditcher in order to remove some of the earth from along the walls of the pipe in preparation for raising.

During extremely wet weather, and in some types of soil, after one or two of the parallel pipes have been uncovered by the ditcher, repaired and backfilled, the ground becomes so soft and inaccessible it has been necessary to uncover and strip the other lines with a shovel gang. This condition was augmented by the fact that the loose dirt placed back in the path of the ditcher by backfilling left the right of way very soft and difficult for manipulation of the ditcher.

After sufficient stripping has been done to assure that pipe will not be put under undue strain while raising, the pipe-lifting crew with tractors follows. Usually four tractors comprise the gang, located from 30 to 50 feet apart, depending upon pipe size, location, etc. Three tractors hold the pipe in tension as it is being raised, while the fourth or rear tractor moves around and up ahead of the others to take a new hold on the pipe, after adequate skids have been placed at the lower end of the rising pipe. A careful and experienced foreman on this type of work sees that the strain placed on the pipe is kept at a minimum at all times.

Applying dope with belt slings

Machine Cleaning

The motor-driven pipe-cleaner follows and prepares the lines for the inspector and marker who follow with wire brush and chisels to locate pits and other points of weakness for the welder. A tractor with small A-mast runs alongside of the machine pipe-cleaner, and at each skid which holds the pipe out of the ditch, the A-mast is set down and then lifts up motor, cleaner and pipe so that the cleaner may continue its operation over the skid. After passing each skid, the A-mast is removed and tractor moves forward to the next skid.

Machine-scraper in action

These particular lines were given a heavy coating of asphalt protective material when first laid, and the machine-cleaner very thoroughly scrapes all this off, together with all rust and hard dirt, except small particles which remain in the pits, collar creases, etc.

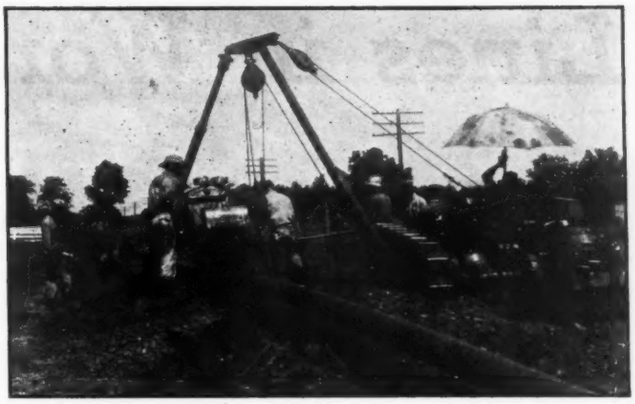
Hand-Cleaning

The hand-cleaners and inspectors use wire brushes and small chisels. They explore all apparent pits, leaky collars, points of weakness, and temporary repairs which have been made by linemen on previous occasions, and mark them for the welder. More severe pits are marked for spot or plaster welding; weak places for patching or for half-soling; and leaky collars are either marked for a new split-sleeve, or complete welding around on both sides. The latter method on leaky collars in most instances will give the same results, and is much cheaper to apply.

Welding crews follow after the pipe has been cleaned and marked. Because this type of work consumes much more time than the preparatory

Are Employed ing Line

By MITCHELL TUCKER



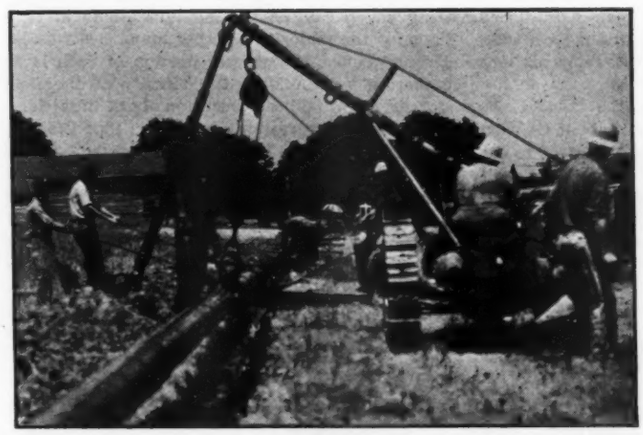
Tractor used to lift scraping-machine over skids

or coating work, a large number of welding outfits and welders are placed along each section of pipe, averaging about eight to the mile on each pipe.

Major repairs or welds are usually made before the pits are spot-welded. Very accurate records of the number and type of different welds have been kept on this project since the beginning, together with detailed costs for each.

The 8-inch pipe has averaged slightly over five coupling-welds per 1,000 feet, and the 12-inch pipe slightly less than five per 1,000 feet. These include either welding both ends of the coupling to the pipe, or covering the entire coupling with a standard split sleeve and welding the sleeve to the pipe.

Patches are applied to leaky or deep-seated pits. An average of about 2,600 square inches of patching has been applied to the 8-inch pipe per 1,000 feet, as indicated by the records for one representative year, and about 3,560 square inches to the 12-inch pipe per 1,000 feet.



Tractors holding pipe out of hole while coating and wrapping

Plaster welds are extensively made where the pits are too close together for separate spot-welding, and not deep or dangerous enough to require half-soling or patching. The welding material is flowed on and the pipe wall built up to its original thickness, or more. During one year an average of about 2,620 square inches of plaster-welding was applied to the 8-inch per 1,000 feet, and about 11,000 square inches to the 12-inch per 1,000 feet.

Spot-welding on small shallow pits, in which corrosion has set in but has not presented any immediate danger, constitutes the largest number of jobs in the average territory and in the average section of pipe. Much of this work is done as a precautionary measure instead of actual needed repairs. Over one year's time an average of 6,850 pit welds were applied to each 1,000 feet of 8-inch pipe, and 12,700 pit-welds to each 1,000 feet of 12-inch pipe.

Pipe-Turning

Following the welding work on the top and accessible side points, the pipe is turned in sections by the use of chain tongs, handled either by tractors or by man crews. It is then inspected and welded on the lower side in the same manner before tension is released and pipe returned to its normal position.

Coating and Wrapping

The dope gang follows the welders. This type of work is largely done by hand, but experimental methods have been tried and are to be tried which will simplify the application by the use of machines or tools. Slugs or handfuls of the very viscous protective coating, usually called "dope," are placed upon the top of the pipe, and a belt-sling, which is wrapped around the pipe and operated by two men, is pulled along to spread it. The wrapper follows the first application of dope, and the final application of coating is put over the wrapping in the same manner as the first, although not so thick.

After the coating has had time to harden, preparations are made for lowering pipe in the hole. A small shovel-gang smoothes the bottom of the ditch for the pipe, levelling off all points where it may be put in a strain, or where the protective coating might be damaged. The skids are removed and pipe lowered in much the same manner as it is raised, seeing at all times that the minimum possible tension or strain is placed on the high-pressure pipe.

Quick work is made of filling the ditch after pipe has been lowered. The conventional type of backfillers are used, which are pulled by tractors.

In the average run of territory, the handling costs, including ditching, stripping, raising, cleaning, lowering, and backfilling, constitute about 50 per cent of the total. Cleaning and wrapping costs represent about 15 per cent, and welding about 35 per cent. A representative average cost for this type of work has been about $2,400 per mile on the 8-inch line and about $3,200 per mile for the 12-inch. Total expenditures for this type of thorough reconditioning is estimated to be about 20 per cent of the total had the bad pipe been replaced with new.

This system of reconditioning pipe without shutting down the line is the result of careful study on the part of the pipe line engineers and superintendents. The experience of other operators has been drawn upon freely and such changes made as are necessary to apply this method to the local conditions found in southern Louisiana.

Instead of shutting down the system and taking up all the pipe and moving it to a central pipe reconditioning yard it has been found feasible to do all the work normally done in central yards on the pipe while it has been raised out of the ditch and is held in place. Care must be taken to avoid forming pockets of air in the pipe while it is out of the ditch for such pockets might prove dangerous when the welding operations are under way.

The welding is done by either acetylene or electric process and in many instances both types of welding outfits are used, one to perform one class of operation and the other for other operations. For instance it is possible to burn out oxidized iron around corrosion spots with the acetylene torch while straight welding can be done with either method. This means that portable electric power plants and gas generating tanks are moved along the right of way to supply the welders with either type of power as needed.

In modern pipe line reconditioning the gangs are made up of experienced men who are trained to do their particular part and the whole series of operations coordinated so that lost motion is eliminated. This tends to hold the costs down to a minimum and experience has shown that the treatment of the pipe line in this manner is very desirable and eliminates local breaks and many annoying repairs done piecemeal as they occur.

Pipe ready to be taken out of ditch

Lines in World's Greatest Oil Field Model of Efficiency

The efficiency and apparent simplicity with which the trunk lines and gathering systems in East Texas serve the world's greatest oil field is a tribute to pipe line management and engineering. The network of gathering lines, controlled by 73 separate companies, through a total of about 135,000 acres, connected to 23,000 wells on about 4,000 leases, is estimated to have an aggregate mileage of 5,000 miles. This does not include the vast gathering and return residue lines serving the 16 natural gasoline plants.

There is a total of 23 trunk lines out of the East Texas field, owned and operated by 12 different companies, having an aggregate daily capacity of almost 1,000,000 bbls., and handling about 500,000 bbls. daily. Table 1 sets out the names of these lines, number of their connections, their destination, and average daily runs. With the exception of the two 8-inch lines operated by Arkansas Pipe Line Co. and Atlas Pipe Line Co., which run to Shreveport, La., and deliver oil to their respective refineries there, practically all the East Texas production which goes into pipe line transit terminates in the refinery area along the Gulf Coast. Gulf Pipe Line Co. has three 8-inch lines running along the western side of the field which are connected to its Oklahoma and eastern system, but it is now being used for transporting oil south rather than for the movement of East Texas crude northward. Many of the connections on independently-owned gathering systems are for deliveries to refineries now operating in the field. There are 71 loading racks along the four railroads serving the field, all of which are inactive now except for the movement of some natural gasoline.

Practically all crude oil lines out of East Texas have been routed so as to conform or tie into other lines from Oklahoma, West Texas, the Van, Conroe or Corsicana pools, Arkansas, or northern Louisiana.

Gathering Systems

Over the past year or two the most important pipe line developments in the field have been in the rearrangement of individual company gathering systems to permit shorter lines, fewer gathering stations, more gravity lines, and greater all around efficiency.

A few years ago there were about 50 refineries operating in the field; now there are only 19. The merger of several small gathering systems has permitted substantial reductions in gathering costs.

There has been a continual effort among the gathering systems serving the major trunk lines especially to simplify their field lines by trading out connections throughout this vast productive area; by the installation of relay stations; by replacing small lines with one large leader line and smaller feeders to individual leases; and by the rearrangement of lines and field stations in order to take the greatest advantage of gravity movement to storage or main line stations.

The Sabine River valley extends east and west across the field about midway between Gladewater and Kilgore, and provides the most important gravitational force in the field. Some gathering systems in the northern end of the field and as far south as New London operate almost entirely by gravity into storage or main line terminals in the river valley. The lowest point is about 4 miles east of Kilgore and seven of the main lines have their origin in this valley. Others have relay stations along the river.

The extreme southern tip of the field is also low with respect to the field from about Overton south, and provides gravitational advantage to the systems serving the main line terminals of eight of the trunk lines leaving the field for the Gulf Coast.

The type of gathering station varies considerably between companies, some being propelled by multiple-cylinder gas or gasoline engines, others by auxiliary units at air-gas lift stations or gasoline plants, and others by reciprocating pumps operating off lease boilers. More recent stations have been those under complete electrical control, fluid levels determining their operating time.

The Magnolia Pipe Line Co. system, now having 1,887 well connections, at one time comprised over 400 miles of gathering lines, and several field gathering stations. Through simplifications in line locations, and by trading of lease connections in the southern part of the field for those in the vicinity of its main system, it has reduced its field lines in half, or to about 200 miles, and has placed them all under gravity movement.

Cooperative Action

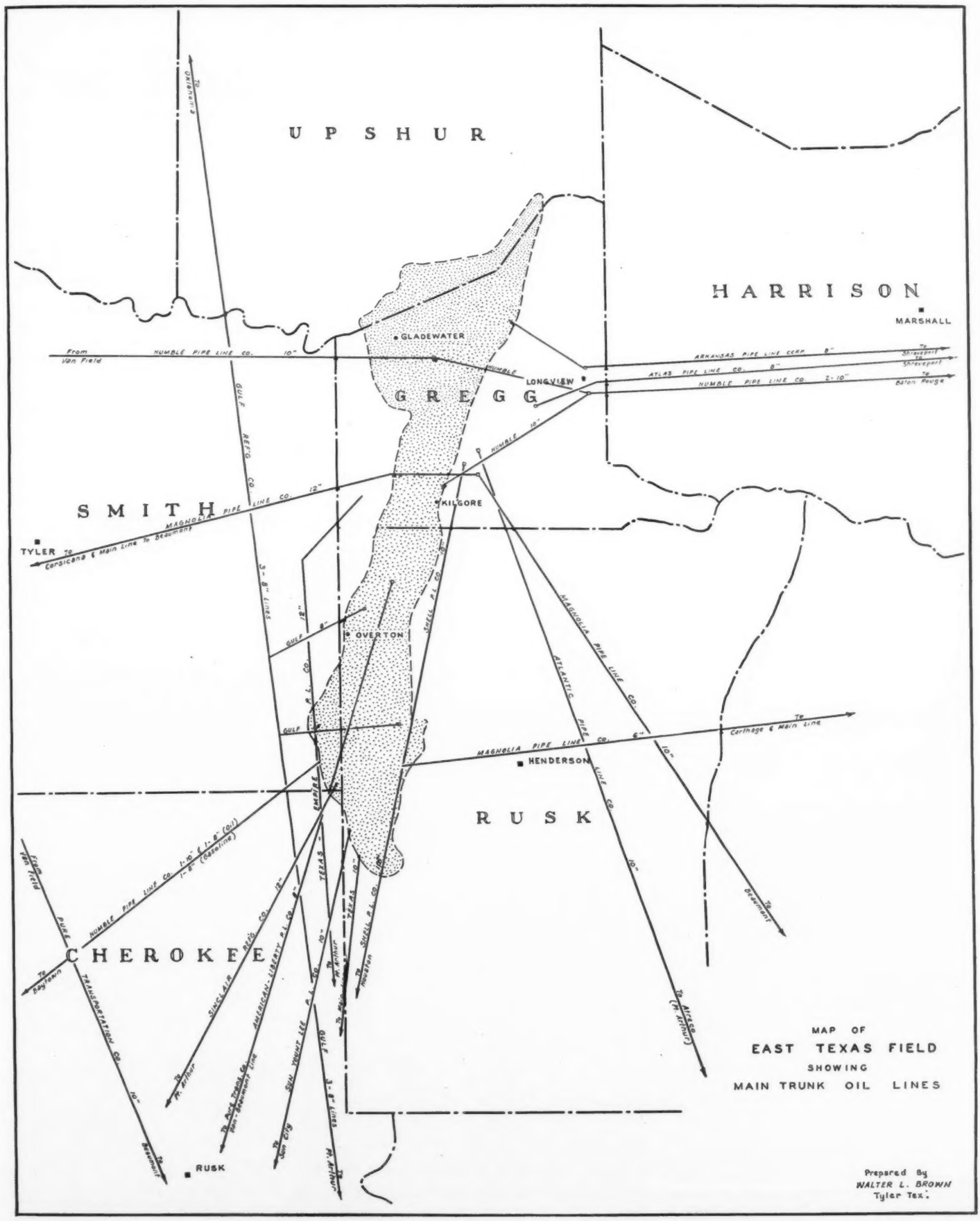
The cooperative action in trading out connections has permitted like simplifications in field lines for the majority of other major systems. As a consequence, the greater portion of each large gathering system is in the vicinity of the field storage, or initial booster station out of the field.

The recent rearrangement of Sun Pipe Line Co. and Yount-Lee Pipe Line Co. (joint system) is outstanding in achieving substantial efficiencies and economies of operation. Their combined gathering system is considered in two parts, that north of the Sabine River and that south of the river. Prior to the recent rearrangement all of their 38 high-pressure gathering units throughout the entire field pumped simultaneously to the tank farm at the initial booster station in the south end of the field, meaning that stations in the northern part of the field were forced to operate at high-line pressures and under continuous operation. By the construction of a 55,000-bbl. receiving tank and relay field station in about the center of the field, the lower part of the gathering system is allowed to deliver direct to the initial main line station, while the system in the upper portion deliver into the 55,000-bbl. receiving tank for later movement by the relay station to the main line plant during that portion of each 24 hours when the lower gathering stations are shut down. Obvious advantages from this rearrangement are (1) the reduction in maintenance expense due to operating lines and field stations at lower pressures and shorter running periods; (2) extension of the economic life of both stations and lines for the same reasons; (3) a reduc-

Magnolia Pipe Line station, Longview, Tex.

tion in electrical power charges due to a better distribution of the demand load over each 24-hour period, and (4) daylight operations at all points except the one relay station.

The deposition of paraffin in gathering lines is undoubtedly the major operating problem confronting East Texas systems, and has been an influential factor in determining the proper size, design and operating schedule of most field lines. Normally, the proportion of paraffin deposition to annular pipe space is determined by pipe size, length, and volumes handled. All companies record



a steady increase in the amount of paraffin accumulation in their gathering lines since the early days of the field. Apparently the character of oil is changing slightly with the age of the field, due to the changing amounts of gas in solution, etc. The manner of lifting also seems to have a direct bearing on paraffin deposition, as when pumping wells are added to the system, accumulation has been observed to increase. Methods of treating, preheating, movement either by gravity or booster station, and temperature all exert an influence upon the rate of deposition, and are the fields in which operators are striving to keep paraffin accumulation at a minimum.

As properties begin producing salt water the paraffin problem increases, because the application of heat for treating purposes, often as high as 140° F., means the oil is delivered to the lines at temperatures higher than normal, and deposition is heavy as cooling takes place.

Scrapers are almost universally used for paraffin control. Pumping stations and lines have been or are being arranged to facilitate this practice wherever possible. All major pipe line companies have adopted a definite program of line-scraping, particularly in the winter months. A crew consisting of a foreman and two helpers is usually assigned to the work of removing paraffin from lines periodically. Most gravity lines, having a reasonably low gradient, require scraping about four times annually. Portable pumps are used to move the scrapers through them. Those through which oil is moved by field booster stations require less scraping under similar circumstances.

Problems of Main Line Movement

The actual operating problems incident to the handling of high-gravity East Texas oil are not of an unusual or serious nature. The crude is not corrosive, does not present any severe packing problem, and does not require excessive line pressures for maximum volumes. As a rule the "close system" is sought to minimize any weathering or loss of gravity during transit. However, rather accurate tests have been made recently by companies and Railway Commission engineers which have shown the maximum loss in transit to the Gulf Coast is about one-half degree A.P.I. corrected.

Several designs of vapor recovery systems are being employed in the field to recover as much of the valuable light crude ends and the heavy gas ends as possible. On those leases so equipped, these vapors go from the separator into the gas gathering system, while on others they go direct to stock tanks. The maintenance of minimum trap pressures has long been practiced in East Texas, as conclusive experiments prove that the lowest practical pressure will result in greatest vapor recovery to the gas system, with minimum vapors remaining in the oil to be lost by evaporation during transportation.

Pipe Line Tenders

One of the principal operating responsibilities for pipe line companies in the field is the securing of proper tenders for both interstate and intrastate movement of oil. The very efficient manner in which the Federal Tender Board and the pipe line department of the Texas Railroad Commission have handled the movement of almost one-half million barrels of oil daily, and its by-products, out of the field in an orderly manner certainly marks an advancement in stabilization and conservation.

There are four forms controlling the movement of oil in intrastate movement which must be filed with the pipe line department of the Railroad Commission, each carrying affidavits of authenticity. Form No. SW-1 is known as the producers authorization, which each and every producer of crude oil must execute under oath authorizing a gatherer, whether himself or some one else, to take oil from the property. Form No. SW-2 is known as the forecast tender, and must be executed by the initial gatherer designated in Form SW-1, and authorizes the actual movement of oil from the lease to the gathering system. Form SW-3 is the crude oil tender, authorizing the gatherer to move the oil from the system or from field storage to a main line station for movement from the field, and must be supported by Form SW-2 in the exact amount. If the movement on Form SW-3 is to a refinery, Form SW-4 must be filled out, supported by Form SW-3, listing all by-products made from the crude and its movement.

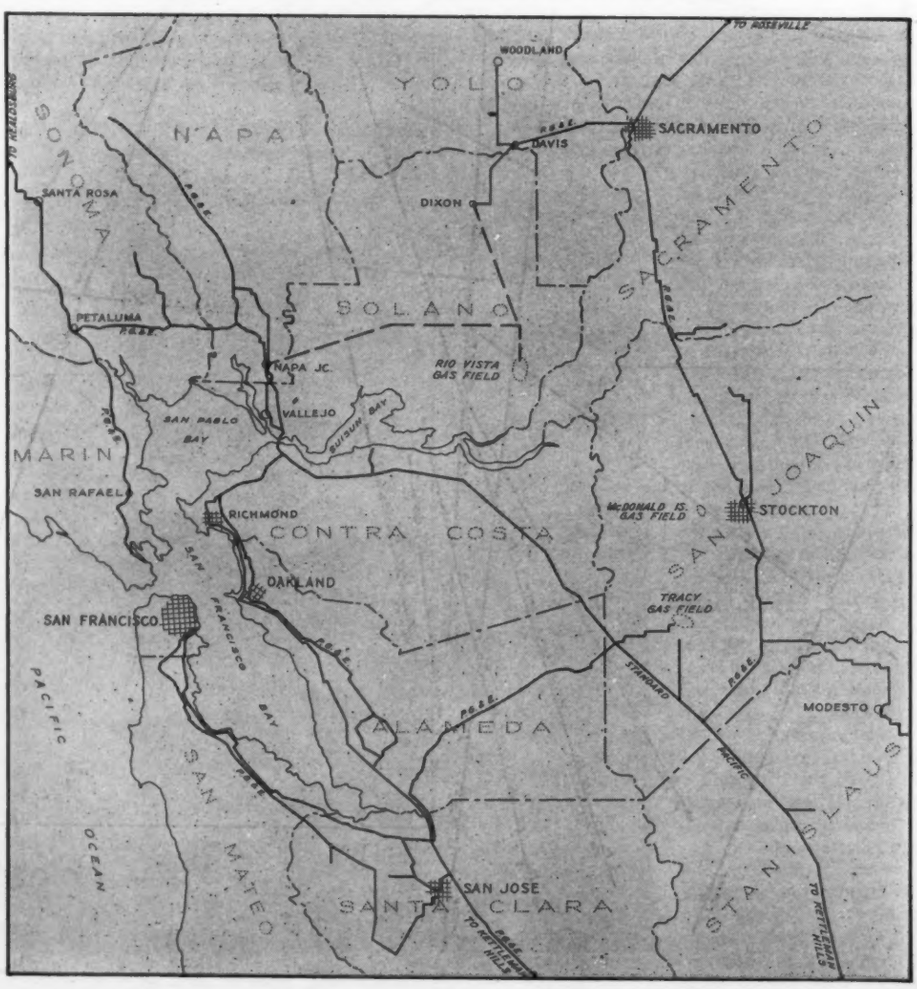
Tank cleaning permits must also be obtained from the pipe line department of the commission before any bottoms can be burned, diverted to lease roads, or reclaimed. If reclaimed, 75 per cent of the volume is charged to lease allowable, and the remaining 25 per cent as waste.

If crude is for interstate or foreign movement, transporters must file Federal Tender Board No. 1 Form 2, which forecasts the production of petroleum and reports storage of oil already tendered but not delivered. This form, or forms, is attached to a Federal Tender Application which the pipe line company files with the board. If the forecast is in order, and lease storage is checked and found to be legally produced, the board holds a hearing and approves the application.

TABLE 1—MAIN TRUNK LINES OUT OF EAST TEXAS FIELD

Name—	Size (inch)	Approx. No. connections as of 7-1-37	Destination	Average daily runs (June)
American Liberty P. L. Co.	8	1,033	Rusk and connect with Pure to Beaumont	35,718
Arkansas P. L. Corp.	8	558	Bossier City, La., refinery	19,131
Atlantic P. L. Co.	10	1,246	Atreco (Port Arthur)	25,410
Atlas P. L. Co.	8	413	Shreveport	13,599
Gulf Refining Co.	3–8	....	Oklahoma and East	
	3–8	1,526	Port Arthur	31,115
Humble P. L. Co.	2–10	....	Baton Rouge	
	1–10		Connects with West Texas lines at Hearn	
	2– 8	3,614	for Baytown	73,090
Magnolia P. L. Co.	10	....	Connects with Beaumont line at Center	
	12	....	To Corsicana and connect with lines to Beaumont	
	6	1,887	To Carthage and connect with lines to Beaumont	36,850
Shell P. L. Co.	10	1,354	Houston	54,000
Sinclair Refining Co.	12	1,914	Port Arthur	39,810
Sun-Yount-Lee P. L. Co.	10	1,614	Sun City	47,590
Texas P. L. Co.	10	637	To Douglass and connect with main line for Port Arthur	12,530
Texas-Empire P. L. Co.	12	950	Port Arthur	37,440

PACIFIC GAS AND ELECTRIC CO. GAS LINES



Wax Plug Used to Clean Line of Interior Accumulations

By F. D. POSEY
Engineer, General Petroleum Corp. of California

Certain crude oils and their residue, as has been known from the beginning of the pipe line industry, will deposit a wax on the inside of lines through which they flow to such an extent as to impair seriously the capacity of the lines.

Even a slight deposit will produce a roughness on the interior of the pipe, causing or increasing turbulence and a resulting reduction of flow. Continued deposit in addition to the roughness caused will materially restrict the area of the cross section of the oil stream.

Scrapers (go-devils) have long been in use for removing this wax, and if run through lines often enough will keep them practically up to capacity. The necessary frequency for running them is variable and must be determined from experience or by the falling-off of the line in capacity.

It has been found that the higher the velocity of flow in a line the less will be the amount of wax deposited. This is true the higher the temperature of the pipe and ground, so that in summer it is not necessary to run a go-devil as often as in winter.

When waxed lines have been cut for one reason or another, it has been noted certain places or stretches of a line would be much more heavily waxed than others. In other words the wax is not uniformly deposited from one end of the line to the other. It is probable certain sections of the line get chilled more readily than others causing an initial deposit of wax and once started the deposit grows in spite of the increased velocity caused by the restriction. It would seem the wax has a sort of affinity for itself.

A 6-inch line of the General Petroleum Corp. of California that had been in service for about 15 years was cut at one point where the deposit of wax was 1¾-inch thick leaving a hole of approximately 2½-inch diameter. This same line cut at other points showed deposits varying from 1 inch in depth to practically nothing.

Many lines are not designed for the insertion and removal of go-devils and may have ells or sharp turns which would impede their passage. The General Petroleum Corp. has several lines of this type and some of them became in course of time badly waxed with resulting loss of capacity. Instead of going to the expense of making entrances and exits for go-devils and removing any ells or sharp bends in the lines, a "go-devil" of wax taken from another line was inserted in the initial end of the line by simply breaking the flanged union outside of the station for its entrance.

The wax is packed in to a length of 6 or 8 feet by ramming with a stout club, inserting occasionally, every foot or so, a circle of cardboard the diameter of the pipe. This seems to help to shape the wax into a good piston.

The pump, after flanging up, shoves this wax plug along the line, causing any deposit in the pipe to accumulate in front of it. If this accumulation is sufficient to cause the pressure at the pump to rise to the maximum allowed and there is practically no movement to the pump, then the line must be opened to let out some of this accumulated wax. This is done by putting on a hot tap, say 2-inch. The location of the plug can be determined very closely by the amount of oil the pump has displaced, this being translated into distance along the pipe line. The hot tap is placed several hundred or perhaps 1,000 feet in advance of where the plug has been calculated to be. The pressure is again put on and the accumulated wax forced through a swing pipe on the tap into dump trucks to be hauled away. When the plug is freely moving again the valve on the hot tap is closed and the process is repeated until another accumulation is made farther on. Sometimes in order to locate the plug small taps may be made in the line and pressure gauges put on. If the full pump pressure shows (allowing of course for any difference in elevation) the gauge is then on the pump side of the plug. If now a gauge is put on at another place farther along the line and a much lower pressure is noted (again allowing for difference in elevation) then the plug is clearly between the gauge points. By this method of "straddling" the location of the plug and the accumulated wax can readily be reduced to a certain section of the line. The last accumulation of wax may be sent into a tank at the receiving station to stay on the tank bottom until the time for cleaning out the tank comes around.

The General Petroleum Corp. has in the above manner dewaxed lines which had fallen below 50 per cent of their normal capacities. In particular the 6-inch line which at one point of cutting showed a diameter of only 2½ inches in the cross section of flow space was restored to normal.

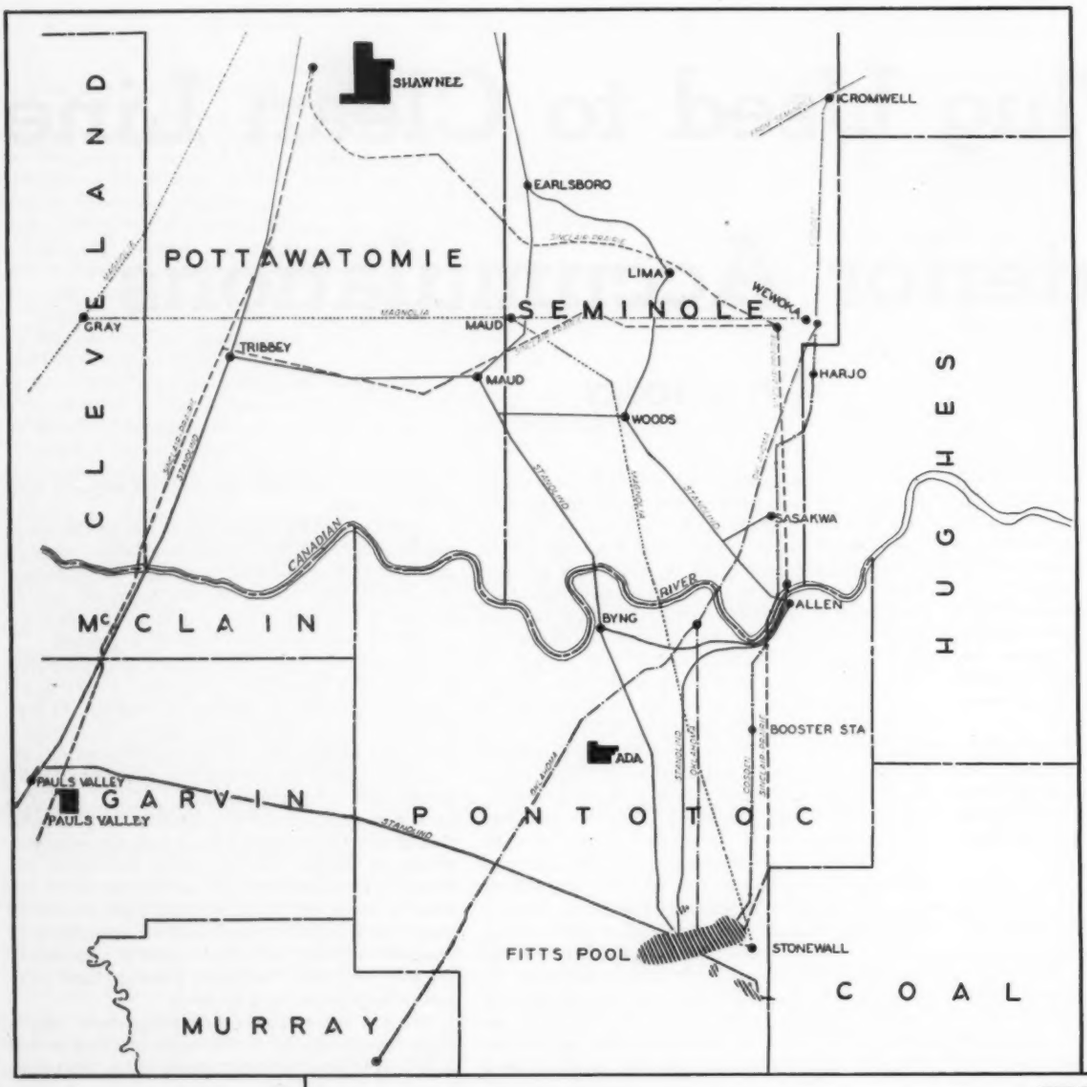
Once having been brought back to full capacity an occasional passing of a wax plug will keep the line free without the bother of removing the wax from the line at intermediate points. If, however, the pump should stop on this subsequent dewaxing, the chances are the hot taps made previously can be used to relieve the line.

If a go-devil should be stalled by an accumulation of wax that could not be moved, the same procedure of tapping the line would have to be followed in relieving the line. In fact go-devils frequently come out nothing more than pistons of wax, it is true with more backbone than the wax plug, but this very lack of backbone is what makes the wax plug more flexible in passing places difficult or impossible for a go-devil.

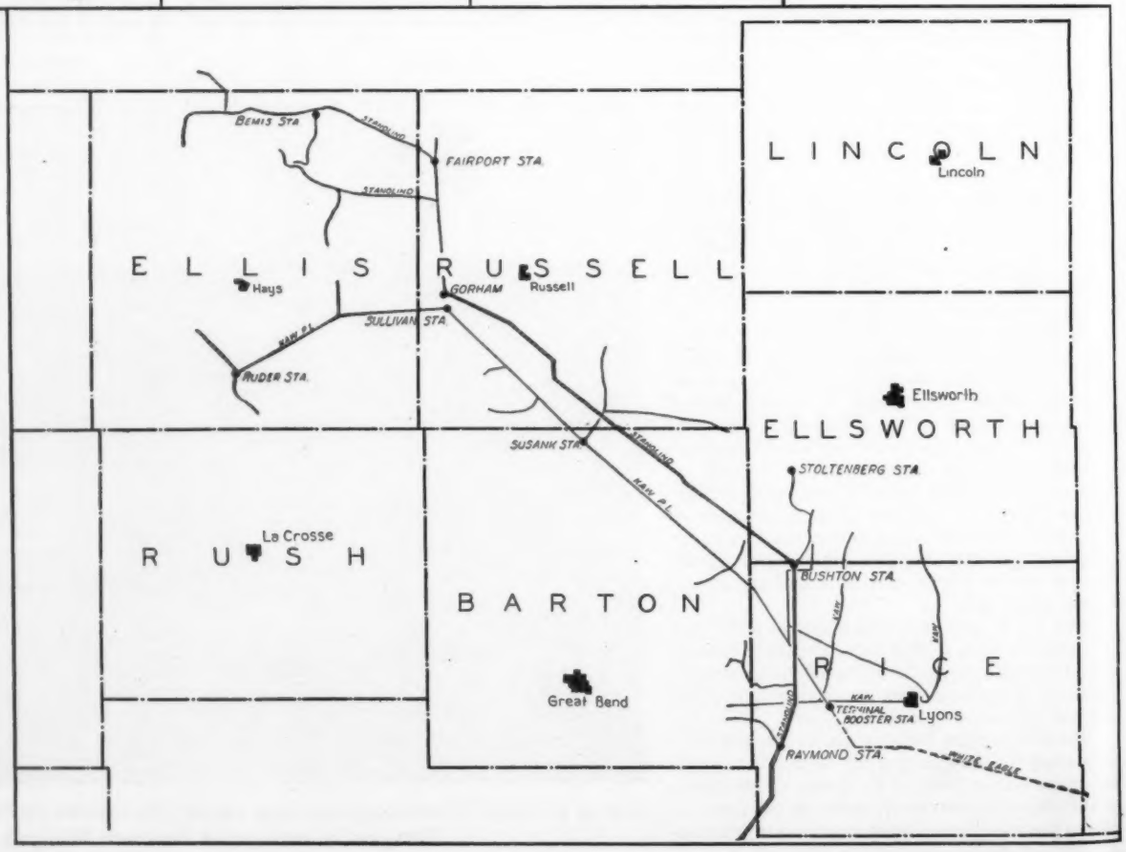
Even if lines subject to waxing show only a slight loss of capacity in the course of a long period it is well to send a plug through say at least once a year in late summer.

Laying a 12-inch 50-mile long gas line, recently completed for Cities Service Gas Co., from Fitts pool to main trunk line near Seminole, Okla.

Pipe Lines Serving Active Oklahoma and Kansas Areas



Pipe lines in the Fitts pool in Pontotoc County, Oklahoma



Stanolind and Kaw pipe line systems in western Kansas

Determining Point of Water Condensation in Pipe Lines

By A. D. GREENE
Chief Engineer, United Gas Public Service Co.

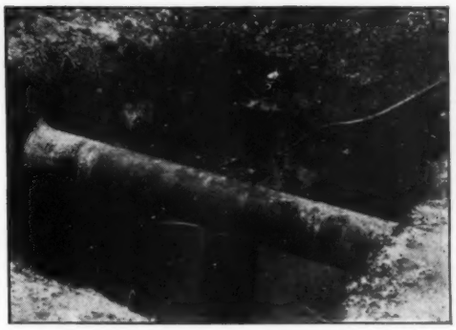


Fig. 2—Thermometer well on pipe line

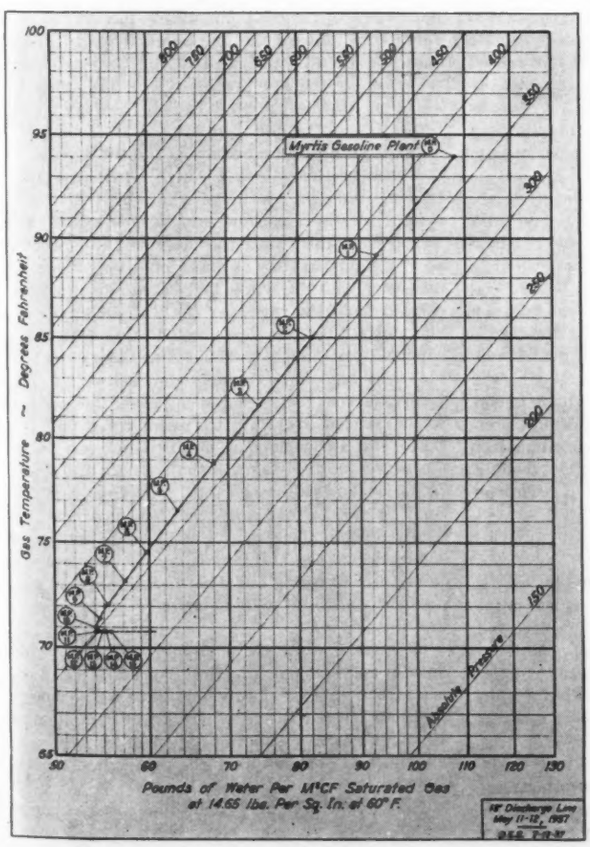
Difficulties in natural gas gathering and transmission systems caused by fluids in the pipe lines—whether liquid hydrocarbons or water—began in the gas fields themselves.

It is generally considered that natural gas as produced from the well is fully saturated with water vapor and at least partially saturated with liquid hydrocarbon vapors. At different localities it is found both liquid hydrocarbons and water exist in such quantities in the well that the gas is not only saturated with both vapors, but also carries the condensates of such from the well and into the gathering line as free fluid.

Present day well drip equipment of adequate size removes practically all of the free fluid existing in the gas at the temperature and pressure at which it is produced at the well. However, as the gas flows from the well into the gathering system, its temperature changes. During warm seasons of the year its temperature will probably be raised while at the same time its pressure will be dropping, thus resulting—due to its undersaturation—in a dry gas. In gas fields where the individual wells are equipped with adequate well drips there is usually little evidence of fluid in the gathering lines during the summer season, while in the winter season, when and if the ground temperature becomes less than the production temperature of the gas, fluids will usually condense in the lines. In areas where the winters are cold enough to result in ground temperatures as low as 45° F. and pressures approach 300 pounds, hydrates form in the lines causing freeze-ups, reducing line capacity, and make of themselves a general source of concern. A great deal of study is being made of this phenomenon by the U. S. Bureau of Mines and it is intended the subject be only touched upon in this article.

In gas fields where a processing plant is located at the point of ultimate outlet from the gathering system it is usually the practice to omit well drips and allow any free fluid produced at the wells, along with fluids of condensation in the gathering system, to find their way through the system until they reach the processing plant where all of the fluids so collected are removed from the gas before it is passed into the transmission system. However, in fields where there is no processing plant due to relatively low production or to relatively low gasoline content, it is customary to equip each well with a well drip and waste or otherwise dispose of the free fluids so collected, at the site of the well. In this sort of operation fluids of condensation soon form in the gathering line, and, unless removed, provide a constant source of trouble such as causing pulsation of meters at well-measuring stations, reducing line capacity, and increasing the likelihood of the formation of hydrates. Furthermore, if the fluid is not removed from the gathering system as it collects in the sags, it will gradually find its way out of the field and into the transmission lines. Even with the installation of a scrubber at the outlet of the field, further condensation due to temperature drop after passing a scrubber so located, will result in the transmission line past this point. In the consideration of the means of removal and disposal of such fluids from the gathering lines and transmission lines, the complexity of varying conditions of production and transmission at different localities makes it necessary that each such problem be worked out separately, benefitting, of course, in each case, by the experience and knowledge thus far gained.

Figure 3



One such problem has arisen in our property within the last several months on the 18-inch transmission line carrying gas, gathered in the Rodessa field, Louisiana, and processed at the Myrtis gasoline plant, from the Myrtis gasoline absorption plant to the main transmission lines between Webster and Latex.

This line is approximately 20 miles long and for the first 11 miles passes through rolling wooded country until it reaches Black Bayou—thereafter across comparatively level, cultivated land. The pipe line is constructed of 18-inch by quarter-inch 47.39-pound pipe and is coated with primer and coal tar enamel. The average cover on the line is about 30 inches. The line was designed for a maximum daily capacity of about 90,000,000 feet with approximately 425 pounds at the Myrtis gasoline plant. When the line was constructed a 60-inch scrubber was installed at a point approximately 2 miles from the gasoline plant to collect mineral seal oil escaping from the gasoline plant absorbers, and fluids of condensation forming between the gasoline plant and the scrubber. However, after the line was put into operation on October 9, 1936, fluids began to collect in various places in the line on the downstream side of the scrubber at mile post 2, and were to be found in varying quantities at varying locations at different times all the way from mile post 2 to the end of the line approximately 20 miles from the gasoline plant.

Surfaces Clean

At first it was considered that possibly the emulsion formed by mineral seal oil and water had coated the scrubber plates or vanes to such an extent as to render them inefficient and perhaps the fluids found on the downstream side were those which had escaped through the scrubber. However, an examination of the interior of the scrubber revealed all surfaces were as clean as when new.

The next step in the study of the conditions existing in this line was to obtain flowing temperatures of the gas in order to determine the distance from the gasoline plant at which the flowing temperature reaches ground temperature.

To obtain such temperatures seven mercury-filled thermometer wells were installed in the 18-inch line at approximate intervals of 1 mile beginning with one well near the gasoline plant outlet. At the time of this work it was considered the flowing temperature of the gas would possibly reach ground temperature within 6 miles. However, by referring to the chart in Figure 1, reflecting data observed on May 11 and May 12, 1937, it is to be noted the temperature of the gas did not reach its minimum value until a distance of flow of approximately 11 miles had been made.

During the 24-hour period extending from 12:00

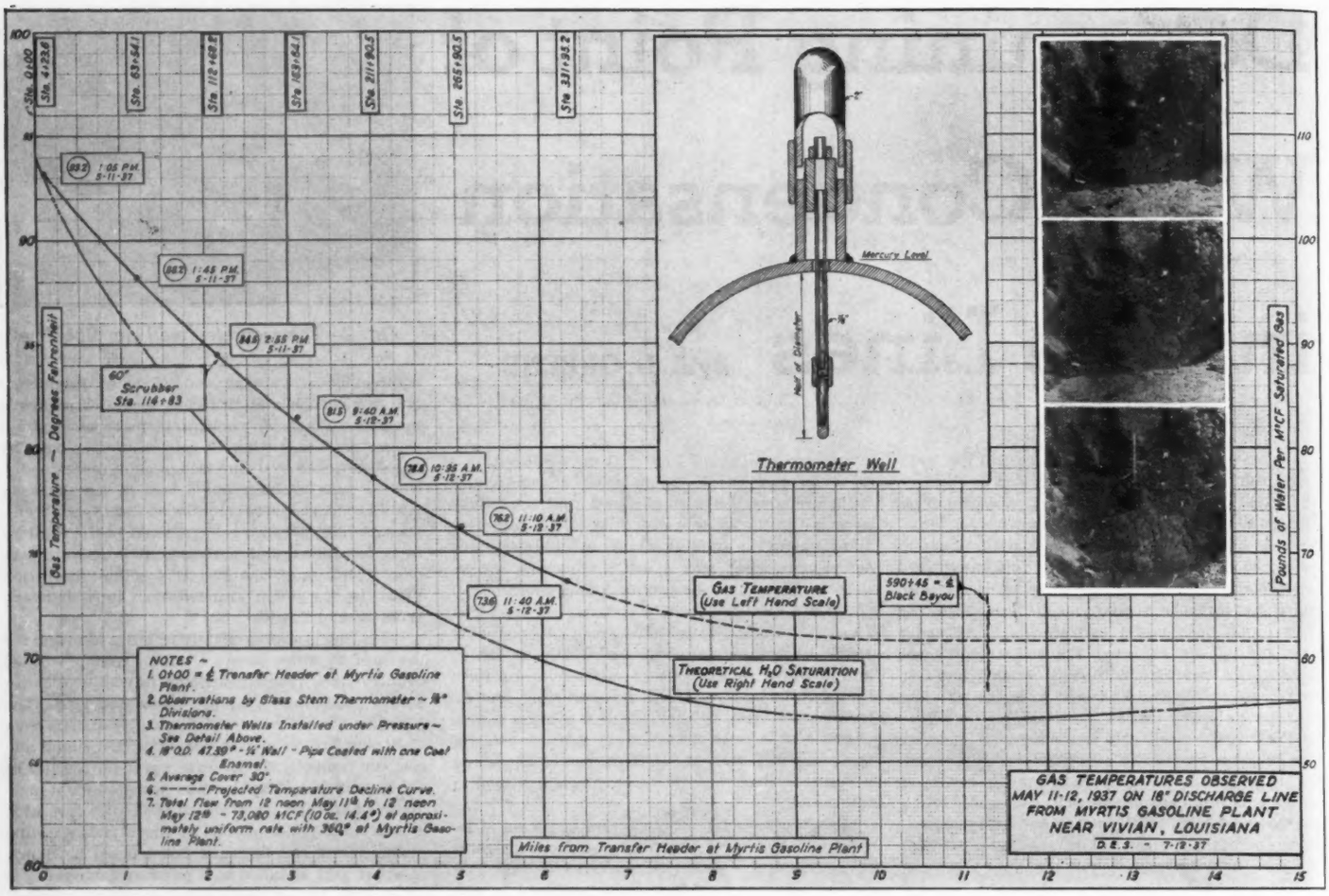

Sta. 0+00
Sta. 41+23.8
Sta. 63+64.1
Sta. 118+68.2
Sta. 163+64.1
Sta. 211+90.5
Sta. 265+90.5
Sta. 331+95.2
(83.2) 1:05 P.M. 5-11-37
(83.) 1:45 P.M. 5-11-37
(84.8) 7:55 P.M. 5-11-37
60" Scrubber Sta. 114+83
(81.2) 9:40 A.M. 5-12-37
(78.6) 10:35 A.M. 5-12-37
(76.2) 11:10 A.M. 5-12-37
(73.6) 11:40 A.M. 5-12-37
Gas Temperature (Use Left Hand Scale)
590+45 = ℄ Black Bayou
Theoretical H2O Saturation (Use Right Hand Scale)
Gas Temperature — Degrees Fahrenheit
Pounds of Water Per MCF Saturated Gas
Thermometer Well
Mercury Level
Dia. of Diameter
NOTES ~
1. 0+00 = ℄ Transfer Header at Myrtis Gasoline Plant.
2. Observations by Glass Stem Thermometer ~ 1/2° Divisions.
3. Thermometer Wells Installed under Pressure ~ See Detail Above.
4. 18" O.D. 47.39# - 1/4" Wall - Pipe Coated with one Coat Enamel.
5. Average Cover 30".
6. ------ Projected Temperature Decline Curve.
7. Total flow from 12 noon May 11th to 12 noon May 12th ~ 73,080 MCF (10 oz. 14.4#) at approximately uniform rate with 360# at Myrtis Gasoline Plant.
Miles from Transfer Header at Myrtis Gasoline Plant
GAS TEMPERATURES OBSERVED MAY 11-12, 1937 ON 18" DISCHARGE LINE FROM MYRTIS GASOLINE PLANT NEAR VIVIAN, LOUISIANA
D.E.S. - 7-12-37

Figure 1

noon, May 11, to 12:00 noon, May 12, the total quantity of gas passing through the 18-inch line was 73,080,000 feet, with an approximately constant pressure of 360 pounds gauge at the gasoline plant. The theoretical pressure was calculated for each mile post from the plant to a point 15 miles distant. Using these pressures, and the value of the temperatures at each corresponding point (actual and projected), the value of the number of pounds of water per million feet of saturated gas was determined for each such set of corresponding temperature and pressure conditions. These values have been also plotted in Figure 1, and indicated that after the point has been passed where gas temperature becomes uniform, the gas actually becomes more and more undersaturated due to further drop in flowing pressure. As a result of such undersaturation, assuming practically all free fluid has been removed at the point where the temperature first reached a uniform value, it is probable any small quantity of fluid carried past such point would be reabsorbed by the gas. In other words, a scrubber installed at the point where the gas temperature reaches a uniform value, removing, say 98 per cent of the free fluid, would obviate any further trouble caused by fluids in the pipe line on the downstream side of the scrubber.

At the beginning of the article it was stated the first source of fluid in pipe lines is at the gas wells. Since the only purpose of the gasoline absorption plant is to remove liquid hydrocarbons and their vapors, from the gas, it might be a matter of conjecture as to the amount of water vapor left in the gas as it leaves the final absorbers. However, as the mineral seal oil at an absorption plant passes through its cycle from absorbers—rich—to main still and back to absorbers—lean—it carries with it in suspension fine particles of water condensed from the live steam with which it comes in intimate contact at the main still. As the gas being processed passes through the absorbers and comes into intimate contact with the mineral seal oil, it absorbs the fine particles of water and leaves the absorbers saturated with water vapor at the existing conditions of pressure and temperature.

The 60-inch scrubber located at mile post 2.17 is probably removing 98 per cent of the free fluid existing in the gas as it enters the scrubber. Based upon the trend indicated by the saturation curve on the chart in Figure 1, and further on the assumption the gas is saturated with water vapor as it leaves the gasoline plant absorbers, the scrubber is removing about 27 pounds of water per million feet of gas; or approximately 50 per cent of the total amount falling out of the gas between the plant and the point at which minimum temperature is reached. The other 50 per cent is left free in the line and represents the source of trouble which has been experienced from free fluid in the pipe line.

As Fluid Condenses

As the fluid condenses in the pipe line bit by bit, it is swept along by the flowing gas to the point of lowest elevation in a sag in the line where the conditions of (1) gas velocity, (2) gradient of the line leaving the sag, (3) amount of fluid, (4) line size, etc., are such the fluid collects. As more fluid condenses, the sag fills up until the body of fluid reaches such a proportional cross sectional area of the pipe line that it begins to surge in wave form as caught by the gas flow. This surge starts up the inclined position of the line, then breaks much as a wave breaks, and starts draining by gravity back toward the low point in the line. As the body flows back toward the low point, it gains momentum and then as the head of the body reaches a point where the line begins to level off, the slackening in its speed of flow causes the rear portion of the body of water to pile up.

This piling up immediately greatly reduces the net cross-sectional area through which the gas is flowing and as a result the whole body of fluid is caught by the gas flow and surges again. This action continues until the body of fluid becomes so great, due to the continual additions from condensation that the whole body is caught in a mass, carried from the sag, over the hill, along the line and down into the next sag. If the next sag is capable of holding, say 25 per cent more fluid than the first sag, and is nearly dry before the slug from the first sag reaches it, then the body of water carried over into the second sag will stop there and surge at that point. However, in the meantime the first sag will again fill up and finally spill over and be carried into the second sag. The fluid in the second sag, together with that just received from the first sag, will all be swept out of the second sag and may carry past several sags before encountering one where conditions are such the body of fluid will again stop and surge in the line.

Of course, it is to be understood that, while fluid is collecting in the first sag and second sag as discussed above, fluid would likewise be collecting in all the other sags, which, while complicating the exact relative effect of action of all sags with one another, does not alter the principle discussed above.

Furthermore, it may occur that a sag near the beginning of the line along with others down-

stream may be almost filled to the critical point of being swept over, when gas-flow conditions are suddenly changed in such a manner as to increase the velocity of the gas sufficiently to start sweeping all of the fluid down the line, along with that picked up at each sag, for a distance of several miles.

It is for the above reasons, therefore, that a large quantity of fluid may be found in a line miles from its beginning point when either none, or only negligible quantities, may be found in intervening sags.

On the basis of the above analysis, it is apparent fluids may exist in a sag one day and all be gone the next, and it is, therefore, necessary to use automatic traps and siphon lines at certain sags to remove the fluid from the line as it collects. To increase the benefits to be gained by the use of automatic traps and simple siphons, the settings should be installed with a bull-plugged well on the bottom of the pipe line in order that any fluid (or at least a sizeable portion of the slug) reaching the installation would be caught in the well and discharged by the trap.

Automatic Trap

Figure 2 shows an experimental 10-inch by 24-inch bull-plugged well on the 10-inch line between Waskom and Latex, equipped with an automatic trap. This sort of an installation furnishes a much more positive and dependable means of removal than that which is obtained by use of a siphon extending simply to the bottom of the line. In places where the fluid is quiescent, the siphon extending to the bottom of the line is satisfactory but in a pipe line, the fluid is usually surging back and forth in such a manner that by the time the trap has started to function, the seal at the bottom of the siphon has been broken due to a surge of the fluid in the line and the trap immediately shuts off. The intermittent action resulting from such a set of conditions is not as satisfactory as the positive continuous action resulting from the set-up where the siphon line extends into a well.

It is felt all trouble from free fluids in the 18-inch line could be overcome by the installation of a scrubber at the point where the temperature of the flowing gas reaches its minimum value, together with the installation of bull-plugged wells and traps in certain selected sags on the upstream side of the scrubber. The wells and traps would remove the bulk of the free water before it would reach the scrubber, while any free body of water escaping the wells and water in mist form would be finally removed by the scrubber. Further drop in pressure after passing the scrubber, with the temperature remaining constant, would enable the gas to reabsorb any small quantity of fluid which might escape through the scrubber.

In order to locate the point of maximum distance from the gasoline plant, under varying conditions of flow at which the gas reaches a uniform temperature, it will be necessary to install additional mercury-filled thermometer wells similar to those now in the line. It will then be possible to obtain temperature readings at comparatively close intervals and to determine definitely the temperature decline curve. Temperature data should be taken at each thermometer well during a period while the gas is flowing in uniform quantity over whatever period is determined by observation as necessary to stabilize the temperatures in the line. Experience has shown temperature changes are not abrupt and it is possible to obtain consistent readings at any one point over a period of several hours. As an example of this, the following data is set down to indicate the very slight deviations in temperature noted on May 11 and May 12, 1937, at the existing seven thermometer wells on the 18-inch Myrtis discharge line. Similar indications of constant temperature under uniform flow have also been experienced from observations made on the Sugar Creek gasoline plant 10-inch discharge line.

Mile post—	May 11 Temp. F.	May 11 Time	May 12 Temp. F.	May 12 Time
0.08	93.2	1:05 p.m.	94.2	2:25 p.m.
1.20	88.2	1:45 p.m.	88.2	2:50 p.m.
2.13	84.5	2:55 p.m.	84.5	3:20 p.m.
3.10	81.5	3:40 p.m.	81.5	9:40 a.m.
4.01	78.6	4:35 p.m.	78.6	10:35 a.m.
5.04	76.4	5:00 p.m.	76.2	11:10 a.m.
6.29	73.7	5:10 p.m.	73.6	11:40 a.m.

The above data appear as conclusive evidence satisfactory temperature data can be secured by taking progressive readings from one thermometer well to another down the line, by use of an indicating thermometer, even though it may take several hours to cover the section under study. This method, when using a sensitive glass-stem thermometer that can be definitely read to 0.1 degree is a great deal more accurate and reliable than obtaining readings by the use of recording thermometers at each point. In using the glass-stem thermometer, the reading is taken while the bulb of the thermometer is immersed in the mercury of the thermometer well.

By regulating the flow through the 18-inch line so it is constant of volumes of, say 40,000,000, 50,000,000, 60,000,000, 70,000,000, 80,000,000, 90,000,000 feet per day and making temperature observations as described above, it is felt further knowledge can be gained which will be of value in working out the problems of controlling free fluid in the pipe lines. Such observations should be made at different seasons of the year so effect of varying ground temperatures can also be included in the study.

Figure 3 shows in a different manner the change in water carrying capacity of the gas as affected by the pressure and temperature changes existing in the 18-inch Myrtis discharge line on May 11 and May 12, 1937. The daytime air temperature over this period was approximately 84° F.

THE COVER PAGE

The illustration opposite page 88 shows the pipe line construction gang at work in Kansas laying a 24-inch loop for the Panhandle Eastern Pipe Line Co. The expansion program of this system constitutes the largest single pipe line project of the transportation industry under way at this time.

T. R. Jones, Inc., contractors of Dallas, established a record last month in laying the Kansas loop. The gang in one day laid 22,810 feet of the 24-inch line. The work of the gang consisted of cleaning and painting the pipe; digging the ditch, which averaged 48 to 70 inches in depth and 3 feet in width; connecting the pipe and lowering it into the ditch. The work was completed in back-filling the ditch.

Novel Barge Buries Pipe in Mud

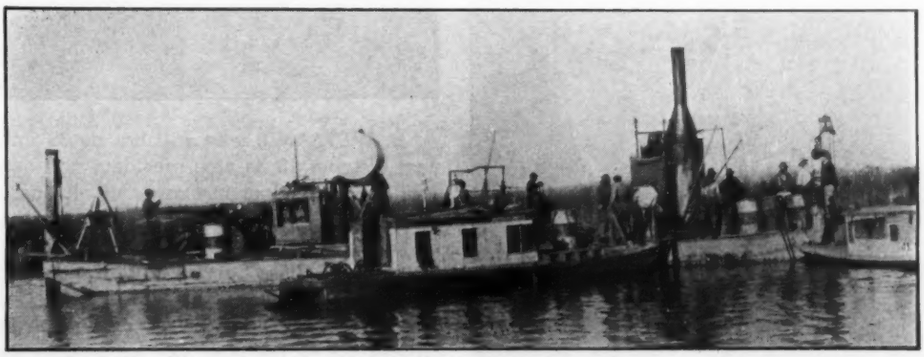
A novel method of pipe line construction was employed by Williams Brothers Corp. in the construction of Texas Pipe Line Co. 22-mile 8-inch welded gas line from the Lafitte field, Jefferson Parish, in Coastal Louisiana, to the Freeport Sulphur Co. plant at Lake Washington in Plaquemines Parish.

Due to the shallow depths along stretches of the waterway and the frequency of storms in this particular area, it was originally planned to use a dredge to bury the pipe. However, due to objection raised by owners of prolific oyster beds through Barataria Bay on the ground that dredging would muddy the water and destroy the oysters, the plans were altered by the contractor who designed a special barge equipped with a steam-operated jack which buried the pipe by pushing it into the mud. This method was used along the entire right of way.

The pipe was coated, wrapped and welded into 80-foot sections at the pipe yard near Lafitte Landing, about 9 miles north of the field, and hauled by barge to location. As each 80-foot section was welded, it was rolled off the work barge and as it was laid on bottom, the special built barge equipped with the jack was pulled directly over the pipe and pushed from 12 to 24 inches into the bottom of the marsh.

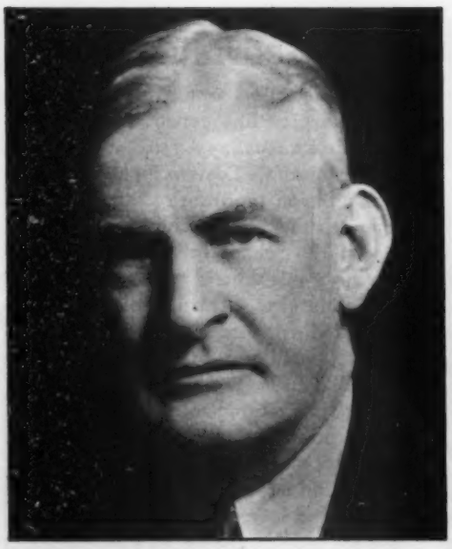
The "plunger" or jack was centered on the rear end of the barge by four steel braces and could be raised or lowered to fit the position of the pipe. On the bottom of the jack was fitted a curved section of padded pipe to engage the top of the pipe line. As the pipe was pushed down, the barge was pulled forward by two steel cables tied to two 150-pound anchors several feet distance from the front end of the barge. The pipe was held in position in the front end of the barge by a lighter jack and the rear end of the barge was held in place by two smaller anchors.

In sections where hard surface was encountered and it was impossible to push down the pipe without breaking the coating, two steam jets were hung on the bottom sides of the pipe and, as the pressure was applied, the pipe was pushed down to the desired depth with the help of jetting. As the pipe began to settle, the jets were pulled forward by two cables until the hard surface section had been completed.



Pipe laying barge

Personalities



T. J. FITCH, who became vice president and general manager of the Magnolia Pipe Line Co. June 1, 1932, had been acting manager for nine years before that. He couldn't well help getting into oil, for he was born in Petroleum Center, Pa., one of the early boom towns on Oil Creek. He started to work for the United Pipe Line Co. in Bradford, Pa., in 1887. Going to Texas in 1911, he worked on the first line laid by Magnolia. He was made superintendent in 1915 moving that year to Dallas where he has since resided.

ROBERT C. TUTTLE, vice president, director and general manager of transportation of the Atlantic Refining Co., started with the company as a stenographer. In 10 years he was manager of the marine department. He is vice president and director of the Atlantic Pipe Line Co., Keystone Pipe Line Co. and Atlantic Oil Shipping Co.; a member of the Union League and Traffic clubs of Philadelphia and the Overbrook Golf Club.

H. C. COOPER, president of the Hope Natural Gas Co., entered Standard Oil service in 1891, when he went to work in the National Transit Co. shops in Oil City, Pa. He joined Hope in 1910 and after two years as engineer was made general superintendent. In 1918 he was placed in charge of all engineering matters and in 1932 was made vice president and general manager. Advancement to the presidency came the next year.

W. R. FINNEY, president of the Oklahoma Pipe Line Co. and vice president of Ajax Pipe Line Co., graduated from Stanford with an M.E. degree and hitched his wagon to the oil business in 1914. Starting as roustabout, he climbed to more important positions. He was with the Pan American Petroleum & Transport Co. from 1929 to 1936, most of that time handling general engineering and other executive work connected with production overseas.

DR. J. FRENCH ROBINSON, president of the Columbia Natural Gas Co., had previously gained a wide experience in oil, gas and coal before joining the company which has its headquarters in Pittsburgh. He served Standard Oil interests as geologist and engineer. He managed a group of companies operating in the Tioga County, Pennsylvania, gas field. He received his B.S. from the University of West Virginia in 1915 and his doctor of science from the University of Pittsburgh in 1929. He is widely known in scientific as well as business circles in Pennsylvania.

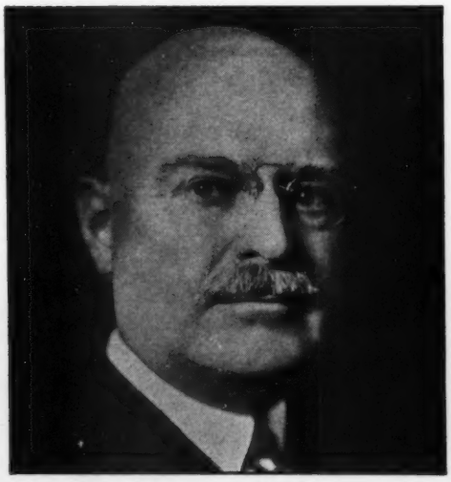
A. H. WEYLAND, who will not be 39 until next October 13, is vice president and general superintendent in charge of all operations of the Arkansas Louisiana Gas Co. and its subsidiaries. He has been with some division of the Cities Service organization ever since he graduated from Texas A. & M. College in 1919 and went on the payroll of the Empire Oil & Refining Co. in Bartlesville, Okla., as a junior engineer.

Behind the Pipe Lines

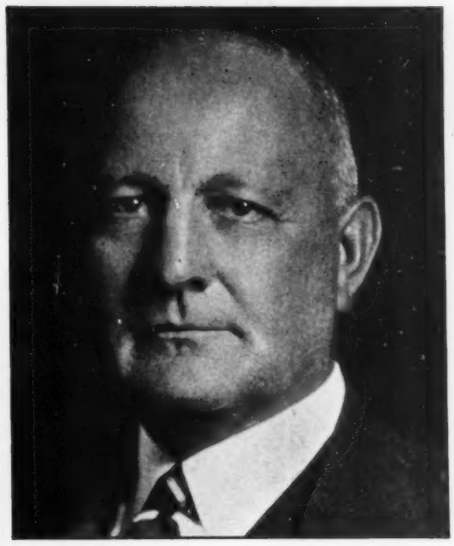
LORING L. TONKIN, vice president, chief engineer and director of the Hope Natural Gas Co., Pittsburgh, Pa., and affiliated companies, has been in the service of the Hope company since his graduation from Cornell University in 1911. He had been assistant general superintendent, and he was moved up to the higher posts when several promotions were made following the death of John B. Corrin, vice president and general manager.

C. E. GALLAGHER assumed the presidency of the East Ohio Gas Co., Cleveland, Ohio, in 1934, succeeding his brother, Ralph W. Gallagher. He joined East Ohio in 1898, when long-distance transportation of natural gas was beginning to expand. He rose steadily. In 1920 he was made general superintendent of the system outside of Cleveland, then assistant general manager, then vice president and general manager.

R. S. ELLISON, president of the Stanolind Pipe Line Co., planned a legal career and began practice in Colorado Springs, Colo. In 1916 he entered the legal department of the Midwest Refining Co., becoming general counsel and later vice president, in charge of producing activities. The great Salt Creek field development in Wyoming was largely under his direction. In 1930 he resigned from Midwest to join Stanolind



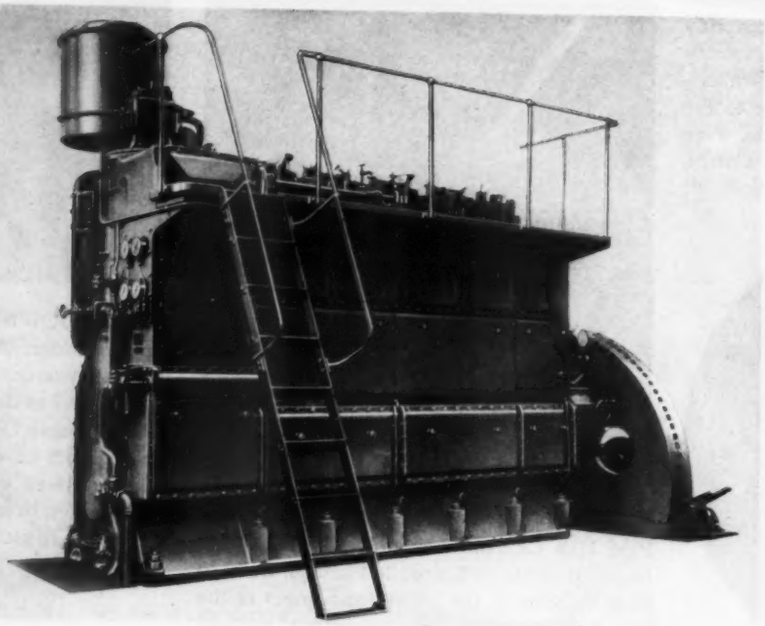
D. S. BUSHNELL, president of the Northern Group of pipe lines since 1911, was graduated from Stevens Institute of Technology in 1896 and started to work with pumping equipment immediately. He became connected with the construction and operation of eastern pipe line systems in 1901 as assistant engineer and in 1907 was made general superintendent. During the World War he had a prominent part in the activities of the National Petroleum War Service Committee.



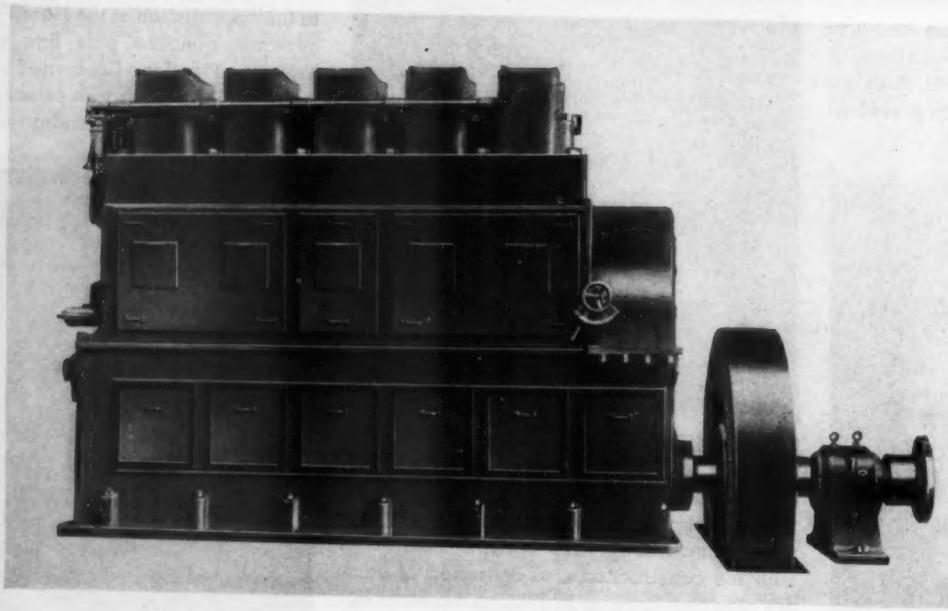
PAUL M. DOWNING, first vice president and general manager of the Pacific Gas & Electric Co., graduated from Stanford University in 1895 and at once entered the public utility field. He joined Pacific Gas & Electric in 1908 as engineer of operation and maintenance and has been with that organization since. He is active in technical associations, and a member of many clubs in San Francisco.

L. M. GOLDSMITH is known as an author as well as an engineer. Technical papers he has written include "New Process for Gas Purification," "Pilot Tube Testing Material" and "Diesel-Electric Drive for Pipe Lines." He received his education in Northeastern Manual High School and Drexel Institute, Philadelphia. He is vice president of the Atlantic Pipe Line Co. and a director of the Atlantic Oil Shipping Co. He has served as engineer in the construction of the New York and Pennsylvania gasoline pipe line system of the Keystone Pipe Line Co. owned by the Atlantic company. An important extension to the system is now under way.

MODERN DIESEL



Alco-Sulzer 2-Cycle Diesel Engine



McIntosh & Seymour 4-Cycle Diesel Engine

POWER

The air is full of claims and counterclaims of the 2-Cycle and 4-Cycle advocates. We are not interested in cycle indices, per se.

Every job must meet certain definite requirements. These requirements rarely can be met equally by both types of Diesel engines.

The ALCO, 4-Cycle Diesel engine, thoroughly modern in every respect, occupies a definite field. The ALCO-SULZER 2-Cycle Diesel engine embodies the most advanced ideas, and experience has demonstrated internationally its applicability.

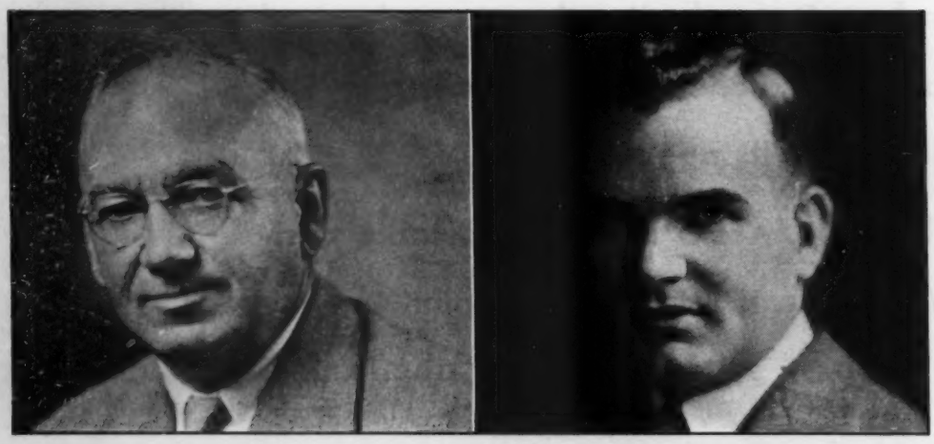
Therefore, ALCO is in the enviable position. ALCO can impartially recommend the engine best suited for every application.

Alco DIESEL ENGINE DIVISION

AMERICAN LOCOMOTIVE COMPANY
30 CHURCH STREET, NEW YORK CITY

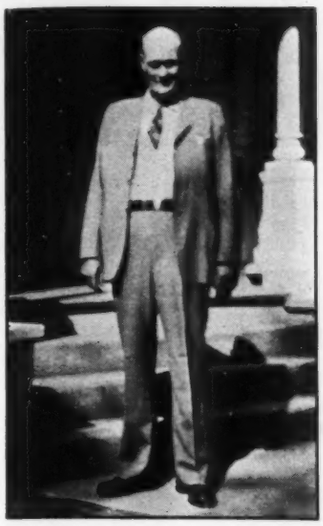
J. A. BEYHAN, (left), general superintendent, *J. MARSTON LINEHAN* and *S. J. FORD,* division superintendents of Cosden Pipe Line Co., devote their time to seeing that Oklahoma's largest refinery at West Tulsa has plenty of crude. The refinery is operated by the Mid-Continent Petroleum Corp., the parent company. Mr. Ford is one of the veterans of the pipe line industry, his period of service covering 45 years.

JUDGE HENRY W. SMITH (left), in charge of contracts, *FRED W. PETERS,* treasurer, and *FRANK B. LONG,* vice president of Oklahoma Natural Gas Co., are up to something at this conference. There is no better known figure in Oklahoma natural gas circles than Frank Long. He has followed natural gas developments, starting with the Trenton Rock district in Indiana.



S. G. SNYDER, (left), superintendent and *J. F. NAGLE,* executive assistant, operate the Kansas pipe line system of the Skelly Oil Co. which supplies crude to the company's refinery at Eldorado. Each has been with the Skelly company in various capacities for about 15 years. Mr. Nagle also has charge of the company's crude purchases and sales.

J. C. REINBOLD, (left), general superintendent, *GEORGE T. KOCK,* superintendent of compressor stations, and *J. S. STEVENSON,* chief engineer, for Panhandle Eastern Pipe Line Co., have had a busy year and are still at it. Their company is carrying on a major enlargement program which will greatly increase the quantities of Texas and Kansas natural gas delivered to Middle West consumers.



R. A. MILLER, a veteran of the pipe line industry, is vice president and manager of the Indiana Pipe Line Co., one of the oldest pipe line systems of the industry built in the hey-day of middle western oil developments. Present field operations may again make it the center of pipe line activity.

FRANKLIN F. SCHAUER on graduating from high school in Philadelphia got $4 a week instead of $2.50 because he could speak French and German. When the United Gas Improvement Co. offered him $45 a month and use of a bicycle as a paving inspector, he took a job and he stayed in the public utility field. He is vice president and general manager of the Equitable Gas Co., Pittsburgh. His letters sound as though he were talking to you.

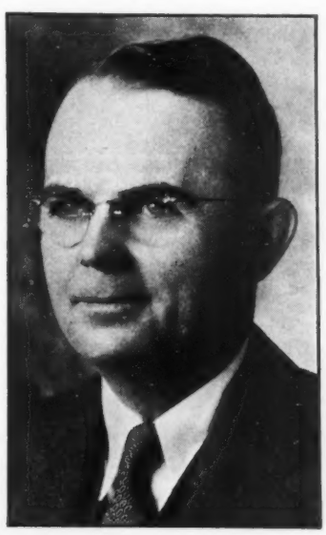
ELMER F. SCHMIDT, vice president of the Lone Star Gas Co. took an engineering job with the Ohio Fuel Supply Co. at Charleston, W. Va., when he graduated from Cornell University in 1912. While with that company he contributed to the development of the orifice meter mercury differential. He went to work for the Lone Star company in 1918 and was made general superintendent in 1920 and in 1936 was elected to his present position.

C. LEE WOOD, general manager of the Houston Pipe Line Co., has had all of his experience in the pipe line business with that company. He was made general manager in 1934 and is also auditor and treasurer of the company. He was born at Helena, Mont., and is a graduate of Princeton University.

WILLIAM GROUNDWATER, director of the Union Oil Co., in charge of transportation, had wide experience in California pipe line operations before he joined the Union organization 16 years ago. He was made assistant manager in 1922 and placed in charge of the department in 1931. He also directs the marine operations of the company and is director of the Pacific American Steamship Association. He is a member of the executive committee of the Marine Service Bureau.

E. M. THARP, vice president and general manager of the Ohio Fuel Gas Co., was the founder and head of a chain of 500 shoe stores before he entered the gas business with Pure Oil Co. as manager of sales promotion. In 1927 he was assistant to the president of the Ohio Fuel Gas Co., in 1931, vice president and 2 years later general manager.

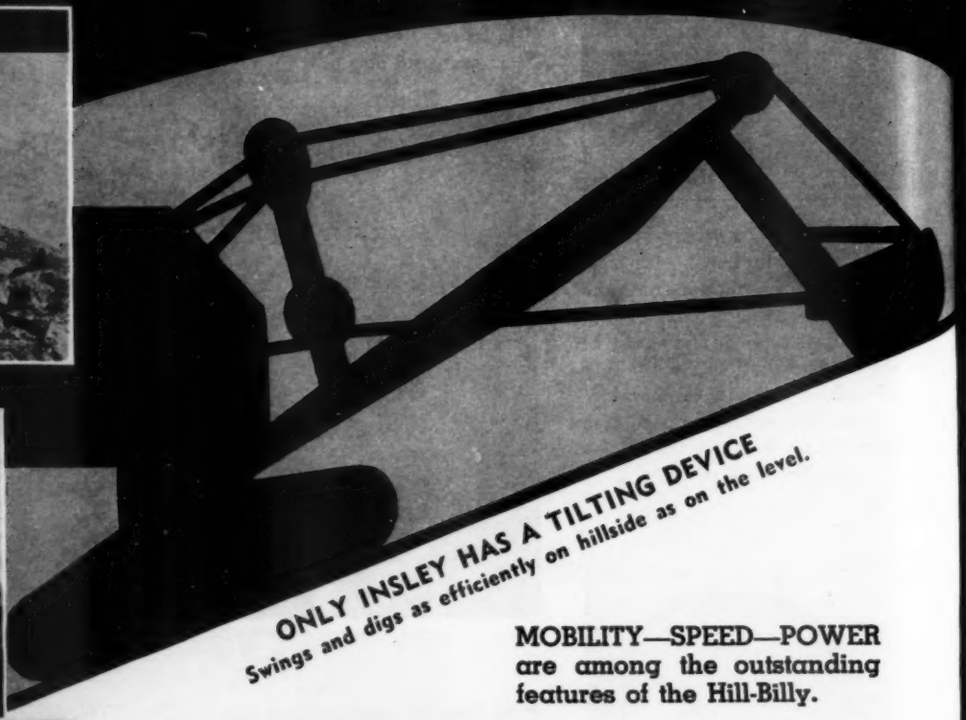
FRANK H. BROOKS, president of the Northern Natural Gas Co., in his early business life was connected with public utility operations at scattered points. He was appointed vice president and general manager of the company of which he is now president in 1931. He is a past president of the Mid-West Gas Association.



VERNON F. PALMER, manager of pipe line department of the Union Gas System, was one of the first to be employed in 1915 by the Gas Pipe Line Corp., organized by the late W. H. "Sagamore" Johnson, and the forerunner of the present Union system. He went to Bartlesville, Okla., in 1907 and attended high school there during a period in which it was an active oil center. He located in Independence, Kans., in 1917 when the company's headquarters were moved to that city.

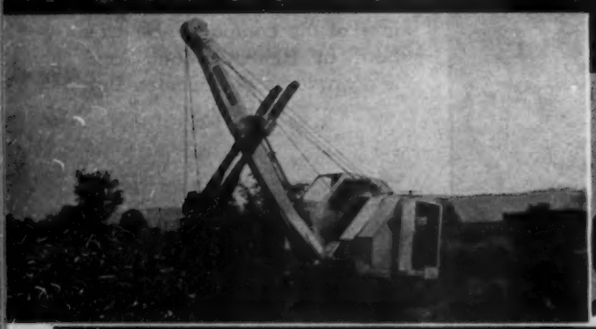
INSLEY HILL-BILLY
DIGS PIPE LINE DITCH
in 85% shoot rock hilly country
FOR 14¢ PER FOOT

STURDY ENOUGH TO DIG ROCK

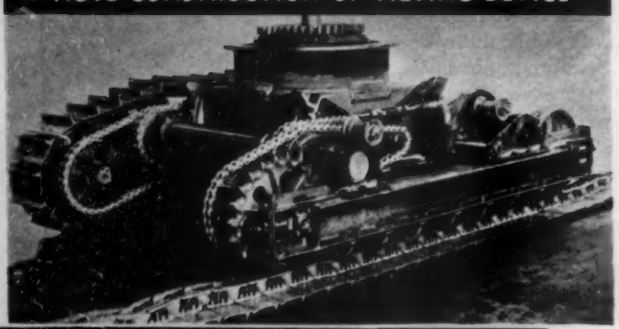


ONLY INSLEY HAS A TILTING DEVICE
Swings and digs as efficiently on hillside as on the level.

TILTED FOR UPHILL OPERATION



NOTE CONSTRUCTION OF TILTING DEVICE



FOR RIVER CROSSINGS AND BACKFILLING

MOBILITY—SPEED—POWER are among the outstanding features of the Hill-Billy.

MANEUVERABILITY. The Hill-Billy can easily maneuver out of difficult places as fast as 3 miles an hour up a 10 percent grade. An independent brake and clutch control each crawler. Caterpillar crawler shoes insure good footing.

EXTRA SPEED AND POWER. An emergency foot accelerator increases the speed and power as much as 50 percent above its governed normal.

LOWER OPERATING COST. The extra power of the Hill-Billy added to the general sturdiness of the entire machine makes it possible to attain the high working speeds that produce unbelievably low costs on pipe line jobs. Note in the photographs the different attachments which add to the all-around usefulness of the Hill-Billy.

OPERATES SAFELY ON 45° GRADES. The exclusive tilting device enables the Hill-Billy to operate safely even on a 45° grade.

INSLEY TRIO. The Standard K-12 one-half yard Excavator. The Hill-Billy which is the Standard K-12 with a tilting device. The K-10 three-eighths yard Excavator.

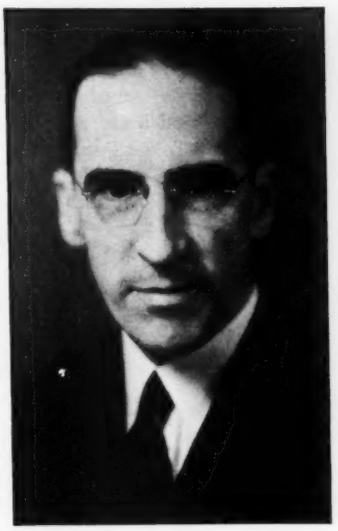
BUILT BY INSLEY MFG. CORP., INDIANAPOLIS

LELAND EQUIPMENT CO.

TULSA LONGVIEW DALLAS

E. H. FORTMANN, general manager of the National Transit Co., makes his headquarters at Oil City, Pa. He directs the operation of lines more than 3,600 miles in length which for years have been an important factor in making markets available for Pennsylvania Grade crude. He previously was superintendent of the company's operations.

T. B. GREENE, vice president of the Buckeye Pipe Line Co., one of the units of the Northern Group Pipe Lines, has been active over a period in which most of the pipe lines of this country were built. His line, originally built to transport Ohio crude, for many years has been an important link in the movement of Mid-Continent crude to eastern and Canadian markets. Mr. Greene makes his home at Lima, Ohio.



DAVID W. HARRIS, vice president and general manager of the Arkansas-Louisiana Gas Co., has had a prominent part in natural gas and crude oil pipe line operations in Louisiana and Arkansas since he went to that area in 1927 as the representative of the Cities Service Co. His first job after graduating from Georgia School of Technology was with a subsidiary of the Cities Service Co. at Denver, Colo.

B. E. HULL is president of the Texas Pipe Line Co. and four other pipe line companies of which the Texas company is part owner. His service with that company covers a period of 32 years. He was connected with production operations for a time and chief engineer of the refining department, 1908-1922. He was an officer of the Mexico subsidiary for three years returning in 1925 to become vice president of the company that he now heads. He holds a civil engineering degree from Agricultural and Mechanical College of Texas.

GEORGE H. BAIRD, manager of the Cities Service Co., has been an Empire man 21 years. He started as a meter tester for the old Quapaw Gas Co. in 1916, and excepting time out for army service has been employed continuously. He graduated in mechanical engineering from Kansas State College in 1914 and was with Westinghouse a year.

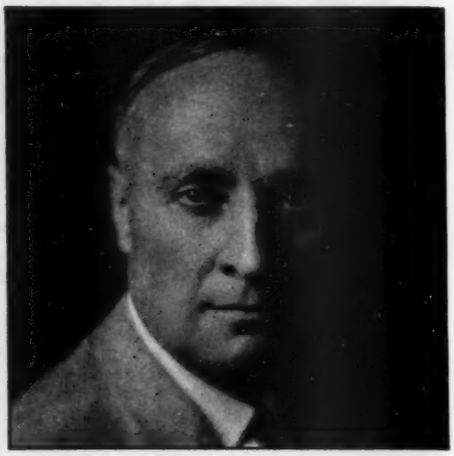
C. C. CRAGIN is vice president and general manager of the El Paso Natural Gas Co., whose operations are unusual in that its summer demand exceeds that of the winter months. This is due to the large sales to copper mining companies and the industries and public utilities of that area. The company also has large domestic distribution. Its gas sales through a subsidiary extend into Mexico.

J. L. LATIMER was made assistant manager of the Magnolia Pipe Line Co. early this year. Previously he had been general superintendent of the company's system, one of the largest of Southwest. He held various positions in the Magnolia company's pipe line operations during a period of 21 years and is thoroughly familiar with operations in Texas, Louisiana, Arkansas and Oklahoma.

J. A. BARTLETT is vice president and general manager of the Northern Pipe Line Co., one of the Northern Group Pipe Lines. He has been engaged in pipe line maintenance and operation for several years. His headquarters are in Oil City, Pa. He is now enjoying a European tour.

F. E. RICHARDSON, chief engineer of the Great Lakes Pipe Line Co., has served as an engineer in all branches of the industry with some experience in other industries. He took over his present job in 1930 when the Great Lakes line was under construction.

A. W. (Al) HUBBELL, president of the Phillips Pipe Line Co., became a pipe line operator after spending several years in the company's natural gasoline department. He helped build the Phillips gasoline line from the Texas Panhandle to St. Louis and then was placed in charge of its operation.



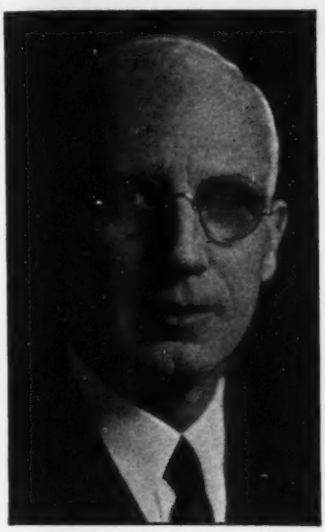
E. F. GUIDINGER, president of Standish Pipe Line Co., is also manager of the crude oil department of Phillips Petroleum Co. In his spare time, as vice president, he also helps operate the Kaw Pipe Line Co. of which the Phillips company is one of three owners.

ALBERT N. HORNE, manager of the Empire Pipe Line Co., is almost as familiar with the long-leaf yellow pine industry as he is with oil. From the time he was 10 till he graduated from Mississippi A. & M. in electrical engineering he spent vacations around Mississippi lumber mills.

HARRY MORELAND, (left), vice president and general manager of the Great Lakes Pipe Line Co., operates the largest gasoline pipe line system of the petroleum industry. *JOSEPH BOWES,* president of Oklahoma Natural Gas Co., had 25 years executive experience with Stone and Webster's various utility organizations before joining the Oklahoma company in 1936. *J. G. DYER,* vice president and manager of the Continental Pipe Line Co., is a man of parts. Part of his time is devoted to duties as manager of the production and drilling department east of the Rocky Mountains, and part to directing the company's pipe line operations. *N. C. McGOWEN,* president of the United Gas Public Service Corp., has been nominated for the presidency of the Natural Gas Division of American Gas Association which will hold its annual meeting at Cleveland, Ohio, the latter part of this month. Before joining the United organization he was vice president of the Palmer Corp. and later head of the Mississippi Valley Fuel Corp.

SAMUEL W. MEALS, president, Carnegie Natural Gas Co., taught school three terms before entering the oil business. In 1892 he became superintendent for South Penn Oil Co. in the Nineveh, Greene County, Pennsylvania, and West Virginia fields. He joined Carnegie Gas Co. in 1904.

D. D. IRWIN, who heads the transportation operations of the Pure Oil Co. had many years' experience in mining before joining the Pure company in 1933. The previous five years he had been general manager of a large English owned copper property in northern Rhodesia. He is a graduate of Yale University and has a son studying engineering there at this time.



WILLIAM W. HAY, manager of Union Oil Co.'s pipe line operations served as a chief clerk, and as chief dispatcher before he was made superintendent of the Los Angeles pipe line in 1923. Last year after 21 years' service with the company he was appointed to his present position. He serves on various operating committees of the company with headquarters in Los Angeles. He finds time to take interest in civic affairs.

J. H. LERCH, Jr., president of the Interstate Natural Gas Co., Inc., and vice president and treasurer of the Colorado Interstate Gas Co. and the Mississippi River Fuel Corp., has played a prominent part in recent years in the operation of Standard Oil Co. of New Jersey natural gas subsidiaries. Before joining that organization he was employed by Ford, Bacon & Davis, engineering firm. He was born at Easton, Pa., and was graduated from Lafayette College in that city in 1909 where he specialized in chemistry. He saw service in the army during the World War.

J. D. CREVELING, president and director of the Panhandle Eastern Pipe Line Co. since July 1, 1936, had served 17 years as head of the natural gas department of Henry L. Doherty & Co. He graduated from Ohio Wesleyan College in 1906, got his M.S. degree the next year and did two years of post-graduate work in the Massachusetts Institute of Technology. He had learned the carpenter's trade and worked his way through school with it. While he was with the Doherty company its natural gas facilities were expanded so that they became a major phase of its activities.

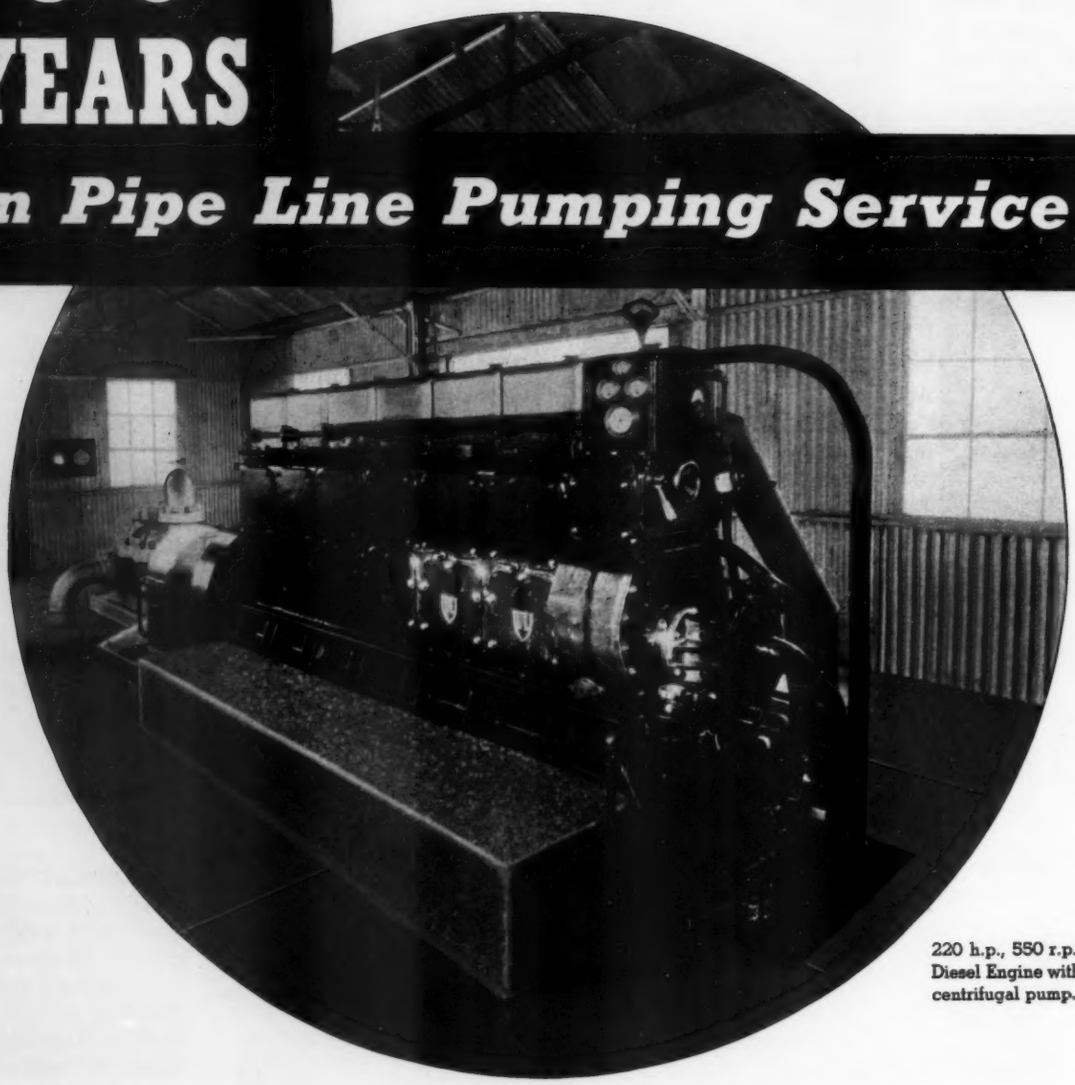
F. B. SIMMS, manager of pipe lines for the Shell Oil Co., had considerable experience in California pipe line work before he joined the Shell organization in 1914 to aid in the construction of a line to the company's refinery in the San Francisco Bay area. In 1922 he built the company's pipe line system in Southern California. He was appointed to his present position this year. He holds a civil engineer's degree from University of California.

H. P. GEORGE, has been general superintendent of natural gas production and transmission for the Southern California Gas Co. since 1925. His first job was with the Standard Oil Co. of California in 1911, and later he was an engineer for the company in the Midway field. He became superintendent of the Midway Gas Co., predecessor of the Southern California Gas Co., in 1919.

R. M. HESKETT'S company, the Montana-Dakota Utilities Co., of which he is vice president and general manager, takes gas from the Kevin-Sunburst field in Montana and the Billy Creek field in Wyoming. He has directed the company's activities since 1924. He was graduated from Armour Institute of Technology. The properties now operated by this company include all the companies which formerly were subsidiaries of the Minnesota Northern Power Co.

30 YEARS

in Pipe Line Pumping Service



220 h.p., 550 r.p.m. De La Vergne Diesel Engine with gear connected centrifugal pump.

- **The First Pipe Line Oil Engines were De La Vergne . . . installed in 1907**
- **These Early Engines are Still Giving Satisfactory Service after 30 years**

In 1907 De La Vergne installed the first oil engines ever to be used for pumping purposes . . . and you will find these old engines still doing duty on oil pipe lines.

Oil engines were followed by horizontal and vertical heavy duty, solid injection, full Diesel type engines, and finally by engines of moderately high speed and light weight.

De La Vergne Engines of the heavy duty, slow speed type have for years been accepted for pipe line service. The faster running engines of the light-weight class have demonstrated their stamina and economy. For example . . . two of these engines of 220 h.p. at 550 r.p.m., in two years of operation, had only a fraction of 1% time out for servicing and a total repair cost of less than $25.00.

De La Vergne builds light-weight, medium speed engines in capacities from 150 b.h.p. to 650 b.h.p. for field lines. And heavy duty, slow speed engines for main line service. Let us tell you about their economies and advantages.

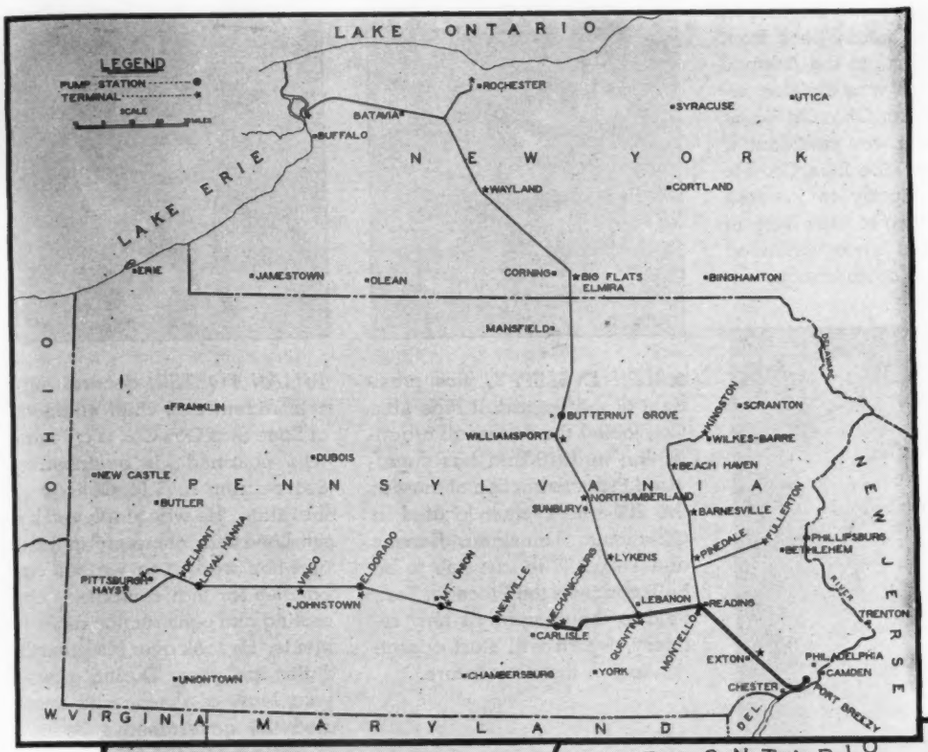
DE LA VERGNE ENGINE CO., PHILADELPHIA

Sales Agent for Baldwin-Southwark Corp.
Subsidiary of The Baldwin Locomotive Works

120 Broadway, New York City — 608 Land Bank Bldg., Kansas City, Mo.
1016 Second National Bank Bldg., Houston, Texas
Pacific Coast Representative: THE PELTON WATER WHEEL CO., San Francisco

DE LA VERGNE diesel engines

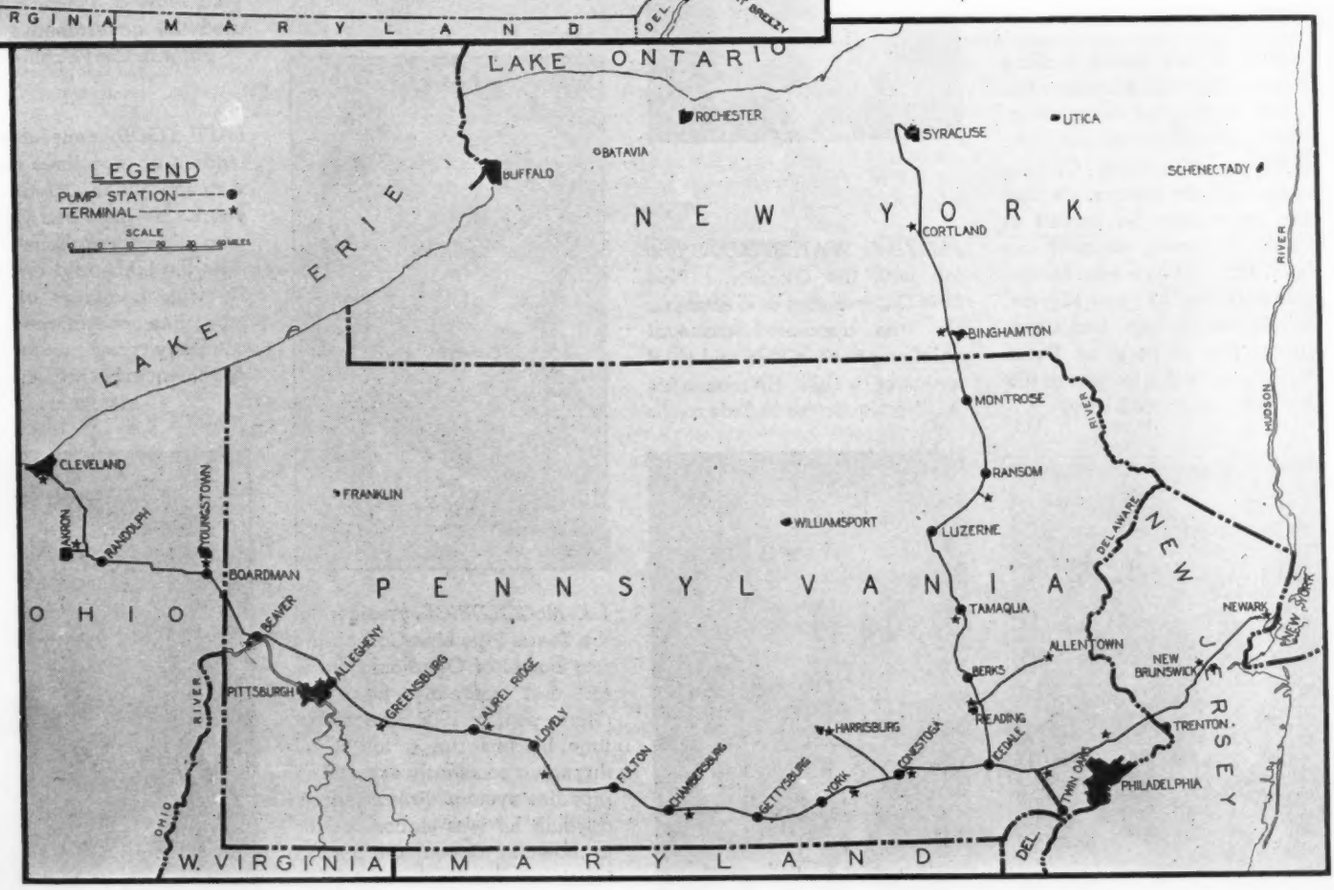
Two Eastern Gasoline Lines Extended



Two major eastern gasoline pipe lines were extended this year. Upper map shows Atlantic Refining Co. system, comprising lines of Keystone Pipe Line Co. and Buffalo Pipe Line Corp. Map includes 213 miles of new 8-inch being laid from Williamsport, Pa., to Rochester and Buffalo, N. Y.

Below is Sun Oil Co. system, including lines of the Susquehanna Pipe Line Co., Sun Pipe Line, Inc., and Sun Oil Line Co. The line connecting the company's refinery at Marcus Hook and Newark, N. J., was completed early this year

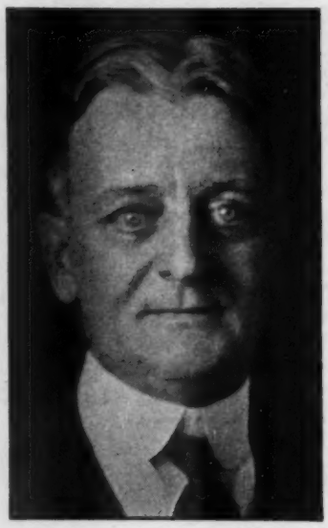
A third major pipe line system serving this area, namely the Tuscarora Pipe Line Co., transports gasoline from the Standard Oil Co. of New Jersey refineries in the Bayonne, N. J., area across southern Pennsylvania to a point near Pittsburgh on the Ohio River.



C. H. KOUNTZ, vice president Sinclair Refining Co. (Pipe Line Division), has been a pipe liner for 36 years. When he entered the Mid-Continent in 1905 there was one line extending as far east and north as Kansas City with a line under construction to Chicago. There were no lines south to Texas. He was brought to the Mid-Continent by the Prairie Oil & Gas Co.

S. W. DAY, vice president of the Standard Oil Co. of Louisiana in charge of the pipe line division, started to work for the company in 1905 as day laborer. Coming up through the company's pipe line department he served in practically every capacity under F. Ray McGrew who recently retired after 33 years service. He operates the pipe line which serves the refinery at Baton Rouge, one of the largest of the petroleum industry.

P. R. APPLEGATE, vice president of the Buckeye Pipe Line Co., had five years business experience and two years practical training in pipe manufacture before he went to work for the subsidiaries of the Standard Oil Co. (New Jersey). He helped build and maintain lines from Humbolt, Kans., to the Atlantic seaboard. He was division superintendent for Ohio Oil Co. in 1908 and later was president of the Crescent Pipe Line Co. He left that company to join the Northern group of pipe lines in 1918 and has since continued with that organization.



FLOYD E. WATERFIELD'S first job with the Oklahoma Pipe Line Co. was that of draftsman. He was appointed assistant chief engineer in 1926 and chief engineer in 1933. He makes his headquarters in Tulsa.

RALPH E. SLEPPY, vice president of the Barnsdall Pipe Line Co., joined the Barnsdall organization in 1916 and has supervised the construction of most of the 600-mile system located in Oklahoma, Louisiana, Kansas and Texas. The last line to be built connects the Placedo, Tex., field to the company's new refinery, which will start operating in the near future.

J. K. McGOLDRICK, president of the Texas Pipe Line Co. ran the first barrel of Oklahoma crude for that company from the Glenn pool in 1906. Since that time he has run a lot of oil through a constantly expanding pipe line system. Previously as a youth he was station tender at Bowling Green, Ohio, and for three years was employed by the Prairie Pipe Line Co. in Kansas. He was elevated to his present position in 1933.

JULIAN FOSTER, general superintendent and chief engineer of Lone Star Gas Co., is a Texan who obtained his engineering degree from A. & M. College of that state. He was employed by the Lone Star company in 1918 and has worked in various capacities for that company's operating and construction departments. He took over his present duties last year. During a two-year leave-of-absence he operated the government's helium plant in the Petrolia field.

LAFE TODD, general superintendent of pipe lines has been with the Union Oil Co. for 30 years. He has seen California pipe line operations expand from the horse and buggy age. He was in charge of various pipe line operations for the company previous to the appointment to his present position last year.

Stove-Pipe Method Is Important Development in Welding Pipe

By A. F. DAVIS
Vice President, Lincoln Electric Co., Cleveland, Ohio

The most recent innovation in the electric welding of pipe lines, and an important one from the standpoint of economy, is the "stove-pipe" method of connecting the field joints. This method, which eliminates the expense of pipe line-up crews and their tractors (which averages $80 per day), makes it possible to weld as many joints, under certain conditions, as with the more costly firing-line method. "Stove-piping" is particularly effective in welding pipe lines through rough country where difficulty is encountered in transporting equipment. The method is also coming into considerable usage in construction of short lines.

With the "stove-pipe" method, one centralized crew lines up the pipe and arc-welds the joints as construction progresses. The crew consists of the regular welding gang, plus one or two additional welding machines and operators. The usual procedure is to line up the pipe on skids high enough above the ground to permit making the weld entirely around the joint. Each weld is made individually with the pipe stationary. The joint is tack-welded as the pipe is lined up, following which the joint is finish welded.

The following Tables 1, 2 and 3 give procedure data and speeds for connecting pipe joints by the "stove-pipe" method. Accompanying illustrations, Figures 1, 2, 3, 4 and 5, show a 94-mile 12-inch gas line under construction by the "stove-pipe" method.

TABLE 1—ELECTRODE SIZES

Position Welding without Backing-up Ring ("Stove-Pipe" Method)

Size pipe—	Electrode size — First bead (in.)	Second bead (in.)	Third bead (in.)
6-in.	5/32-3/16	3/16	3/16
8-in.	7/32-3/16	3/16	3/16
10-in.	3/16	3/16	3/16
12-in.	3/16	3/16	3/16

TABLE 2—PIPE SPACING

Position Welding without Backing-up Ring ("Stove-Pipe" Method)

Size pipe—	Average spacing (in.)
6-in.	1/8
8-in.	1/8
10-in.	1/8
12-in.	1/8

TABLE 3—RELATIVE WELDING SPEEDS

Position Welding without Backing-up Ring ("Stove-Pipe" Method)

Size pipe—	Av. welds per hr.
6-in.	3.0
8-in.	2.5
10-in.	2.0
12-in.	1.5

The speed of welding by the "stove-pipe" method does not compare with that obtained by "firing-line" procedure under favorable conditions as where a line is laid across flat country free of mud, rocks, etc. This is evident from the following Table 4 which gives welding speeds for "firing-line" and "stove-pipe" procedure.

TABLE 4—WELDING SPEEDS COMPARED

Pipe Welding Speeds by Firing Line and "Stove-Pipe" Method

Pipe size—	Average welds per hour — "Firing Line"	"Stove-Pipe"
6-in.	7.0	3.0
8-in.	6.5	2.5
10-in.	5.0	2.0
12-in.	4.5	1.5

It must be remembered, however, that "firing-line" procedure is most effectively employed under favorable conditions where no difficulty is encountered in moving the equipment for lining up the pipe. Under such conditions, and where speed is a factor, the "firing-line" method will probably continue being employed since the increased welding speed permits completing the line in the shortest possible time. This is evident from the record speed of constructing the 304-mile crude oil line for the Shell Oil Co. from Bakersfield to Martinez, Calif. This line was laid and welded in only 70 days. Conditions were very favorable. However, it is frequently necessary to lay lines under adverse conditions. In such instances "stove-piping" is used to excellent advantage. The speed of welding the pipe joints equals or exceeds what would be possible by "firing-line" procedure and approximately $80 is saved per day.

There is a growing tendency in welded pipe line construction to employ "stove-piping," even though conditions are favorable to the use of "firing-line" procedure. A leading contractor now uses the method almost exclusively in laying lines of 6-inch or smaller diameter pipe. The pipe is readily handled by the one centralized "stove-piping" crew and resulting joint-welding speed practically equals "firing-line" speeds. Whatever advantage "firing-line" procedure may have in speed is offset by the cost savings of "stove-piping." It is possible that development of special equipment and added experience may lead to general use of "stove-piping" in laying lines of any size pipe. The method's economy will undoubtedly stimulate study leading to most efficient equipment and procedure of employing it.

It is interesting to note how marked has been the progress in use of electric-welding in pipe line construction. Reliable data indicate that during the nine years—1928 to 1936, inclusive—progress has been remarkable. In 1936, 75 per cent of pipe lines constructed were electric-welded; for 1928 the figure was 9.5 per cent.

Accounting for the marked progress of electric-welding in pipe line construction is the inherent simplicity of the process itself, steady improvement in arc-welding electrodes and machines, permitting high-quality welding at low cost, and the development by pipe line contractors, in conjunction with welding engineers, of efficient pipe line welding procedure. It is now possible through use of shielded arc electrodes to produce welds in pipe exceeding the physical properties of the pipe itself. And with modern pipe line arc welding machines, these high-quality welds are made 50 to 200 per cent faster than was possible a few years ago.

Twelve-inch gas line being stove-piped in West Virginia

Tack-welding a joint of 94-mile 12-inch gas line by stove-pipe method

Pipe Line Felts Free from Destructible Filler

Felt that stands this flame test will not deteriorate

TEXAS
BAYTOWN to PORT ARTHUR
to TOMBALL, TEXAS
HUMBLE OIL & REFINING COMPANY
INC. LINE
Photographic steps in the coating and winding of underground oil pipes
Contractors: MAYES BROTHERS, INC.
Houston, Texas

WE INVITE YOU to make this test. Place a flame under a piece of RU-BER-OID Asbestos Pipe Line Felt. Only the saturant will burn, for RU-BER-OID Felt is 99% Pure Asbestos—free from destructible filler. This means positive, not partial water-proof pipe protection, for fillers that burn are likely to deteriorate underground.

RU-BER-OID Asbestos Pipe Line Felts are non-capillary and non-tubular. They are chemically and electrically inert, affording added protection against electrolysis and stray currents. They may be obtained with either coal tar or asphalt saturant to meet the type of primer and enamel used.

Regardless of which type you select, no Tensile or Mullen strength is sacrificed. Both are sufficiently rugged to stand hand or mill wrapping. Both carry the maximum percentage of saturation, and like all products made by The Ruberoid Co., quality is kept uniform by rigid laboratory control.

Be sure to use RU-BER-OID's 99% Pure Asbestos Felts. They cost no more but give you added protection. Samples and our valuable instruction booklet will be forwarded free. Address Pipe Line Engineering Dept., The Ruberoid Co., 500 Fifth Avenue, New York, N.Y.

RU-BER-OID
PIPE LINE FELTS

RU-BER-OID Products Used in the Oil and Gas Fields

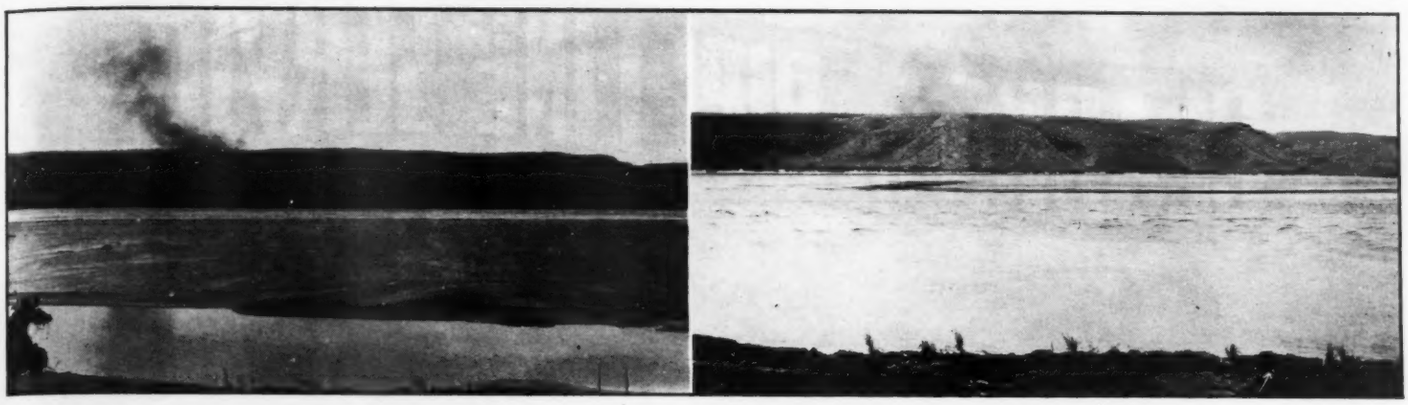
RU-BER-OID PIPE LINE FELTS

Imperial 99% Pure Tar Saturated Asbestos Felt—Imperial 99% Pure Asphalt Saturated Asbestos Felt—RU-BER-OID 15 lb. Tarred Rag Felt—RU-BER-OID 15 lb. Asphalt Rag Felt—RU-BER-OID 30 lb. Asphalt Rag Felt, coated both sides with Asphalt—Mica surfaced one side.

R. B. HALL & COMPANY

Sales Agents Oil, Gas and Industrial Division

DALLAS, TEXAS



Looking south from north bank at No. 4 crossing over Canadian River. Low water in foreground with current against south bank

Same location, showing channel in foreground. High water mark indicated by arrow on bank in lower right-hand corner

Canadian River Flood Problem at the Pipe Line Crossings

By L. D. WILLIAMS
Superintendent, Texoma Natural Gas Co., Fritch, Tex.

A period of unusually heavy rainfall in the Panhandle of Texas and Oklahoma and along the headwaters of the South Canadian River and its tributaries began May 22, 1937, which lasted until June 9. During this time, waters reached unprecedented heights in many parts of the area mentioned, not only flooding streams but running over fields never before known to have been covered, cutting new channels, damaging crops and farm homes, washing out railroad and highway grades, bridges and pipe lines.

During the week preceding May 29, the rainfall was more or less general over the South Canadian River watershed and considerable water was present in the river channel, which is normally almost or entirely dry. Rains on Friday of that week were very heavy over the entire watershed, causing a peak of 10 feet at Sanford, Tex., on Saturday, May 29. By that afternoon, the water had receded and it was hoped the river would return to normal. However, rains continued and a second peak of 8 feet was reached about 8 p.m. on Monday, June 1, a third peak on Thursday and a fourth of 7 feet on Friday afternoon. This was the last of the large rises but continued precipitation kept the water between 2 and 5 feet until June 29. Water has remained in the river since that date but the flow has not been of any consequence.

The writer was particularly interested in the situation in the South Canadian because of danger to pipe lines under his charge and followed conditions as closely as possible. This consideration brought out certain unforeseen contingencies and showed certain safeguards for buried pipe lines in the river were inadequate. It is the purpose of this article to discuss the entire question, describing the action of the floods and their effect on facilities in the river and drawing conclusions which may be of value in future construction.

The possibility of flood damage made it advisable to secure all advance information possible, in order that we might visualize conditions in advance and take steps for protection before the arrival of a flood crest. In attempting to secure such information, it was found the personnel in the Amarillo offices of the Chicago, Rock Island and Pacific and the Fort Worth and Denver Railroads could report river conditions from Logan, N. Mex., and Tascosa, Tex., and rainfall data from all of their stations. From this, we could approximate the time of arrival and height of a flood crest.

Railroads Aid

The railroad men were more than obliging in furnishing this information and deserve every commendation for their cooperation. Not only were they willing to give us information at the time it was requested but they also used railroad time and communication facilities to secure additional data for us while their time and wires were needed for the dispatching of trains over damaged tracks.

Logan is about 150 miles west by river from our location at Fritch, Tex., and Tascosa is about 46 miles. A considerable amount of drainage enters the river from the territory around Dalhart, Tex., and Clayton, N. Mex., near the latter point. During the time under discussion, reports from Dalhart did not give us much information as to the amount of water that would reach the river at Tascosa and reports from Logan became somewhat inconsistent by the time the water reached Tascosa from there. Even with little water reaching the river east of Tascosa, reports from there were also inconsistent with later water heights in our immediate vicinity. We therefore found we could not rely on any of the reports for more than an indication of expected water conditions. Accordingly, we accepted the Logan reports for early and general information and the Tascosa reports for more specific details. Even then, we were never certain actual conditions would check with the advance information.

From time checks made between Tascosa and Fritch and between the highway bridge on highway No. 4, and Fritch, it appears the flood crests travel between 7 and 8 miles an hour. A crest often appears in what is locally termed a "head rise" in which it travels in a wall several feet high and a rise of 4 to 6 feet may take place in as many minutes. The rise then becomes more gradual until the peak is reached, after which recession begins. The fall is usually slow for some time, becoming more rapid until a comparatively low stage is reached. This low stage will continue until added rainfall flows into the river or until the river becomes dry.

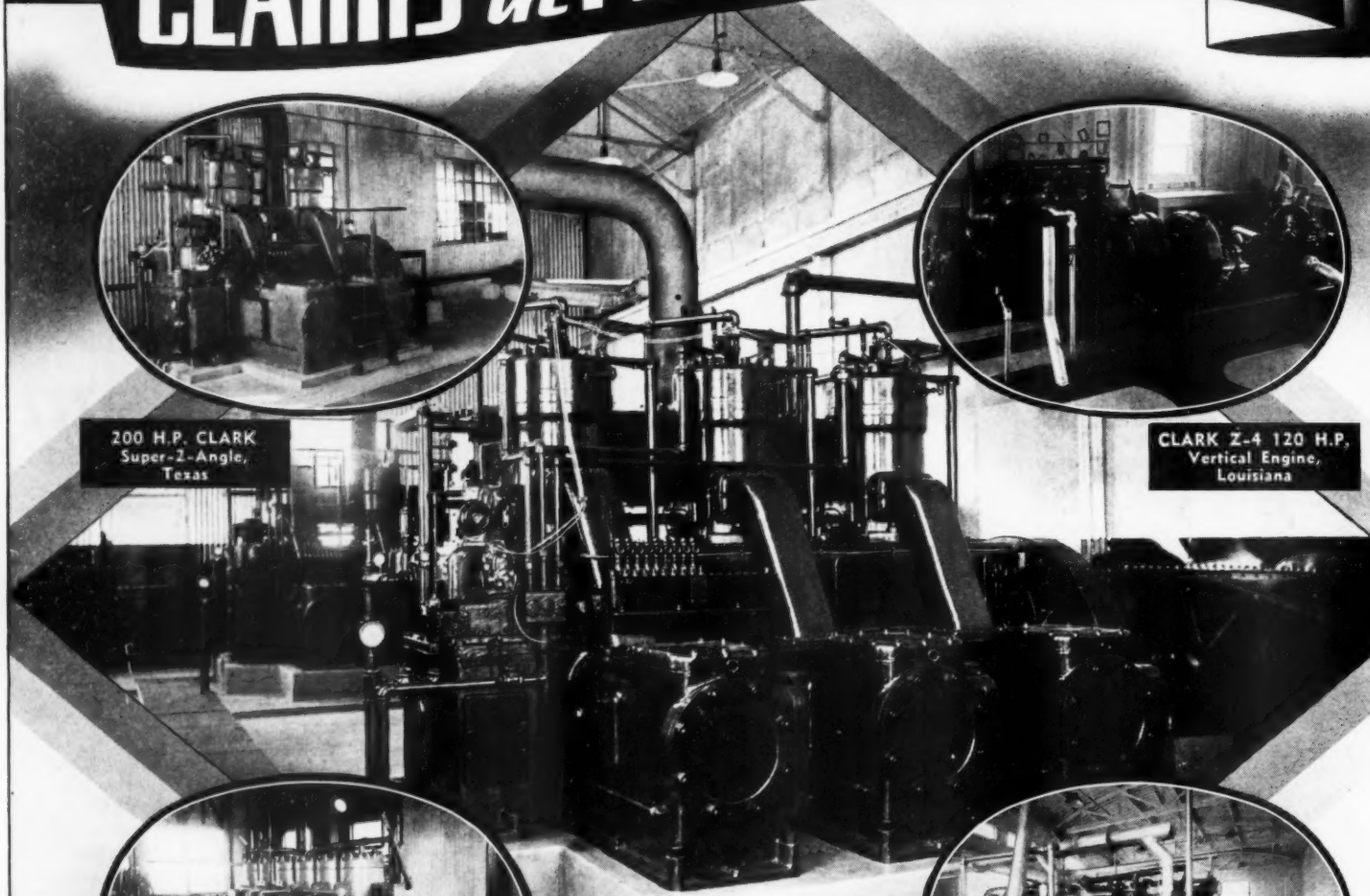
When the river is bank-full, the main part of the current crowds the outside bank at bends and travels at or near the center in the straight portions. It is further true the water will be about 2 feet higher in the main current than at either bank during high stages. As the water falls, the current shifts and may be found on one side after the first flood and on the other side or in the center after the next one. It is supposed this is influenced by the amount of water flowing in from tributary streams and by the deposition of sand bars during higher stages. We have not been able to determine the exact reason for these vagaries but it is certain the flow is uneven and a heavy current may be expected in any part of the channel at any time, as well as the one always to be found on the outside of the bends.

It is interesting to note the river bottom remains solid while the water is rising, so it can be forded with horses or cattle during the rise unless the depth is so great the animals cannot keep their footing. This is locally explained by the assumption that the increasing head of water above the sandy bottom squeezes out the underlying water and compacts the sand. On the other hand, as the

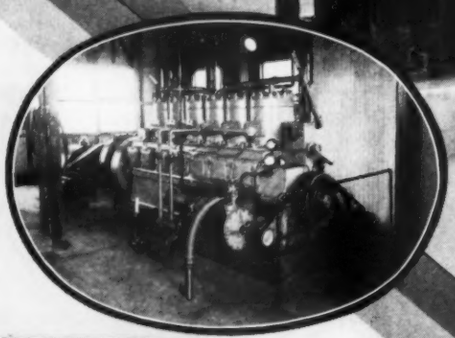
CLARKS *in* PIPE-LINE SERVICE

200 H.P. CLARK Super-2-Angle, Texas

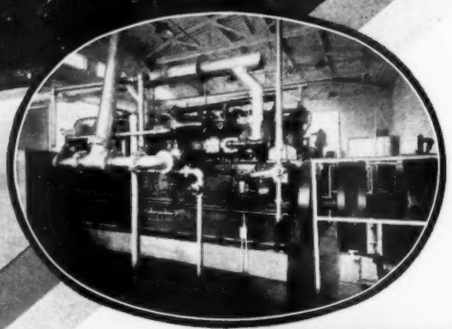
CLARK Z-4 120 H.P. Vertical Engine, Louisiana



2 300 H.P. CLARK Super-2-Angle Gas Engines, Pipe Line Station, New Mexico



CLARK Z-6 180 H.P. Vertical Engine, New Mexico



CLARK Z-8 240 H.P. Vertical Engine, Kansas

CLARK is gratified to announce the wonderful reception accorded by the pipe-line companies to the new **CLARK** Super-2-Angle Gas Engine. The Super-2-Angle is introducing entirely new standards of economy, saving money in these four important ways:

1. CUTS TRANSPORTATION AND ERECTION COSTS.
2. SMALLER FOUNDATION, LESS FLOOR SPACE, SMALLER BUILDING.
3. SAVES FUEL, due to CLARK Super-2-Cycle Fuel Injection.
4. LOWER MAINTENANCE, due to simplicity of design and few parts.

Where higher-speed units are required, CLARK Type "Z" 4-Cycle Engines have long been favorites in the Pipe Line Industry.

Engineeers are urged to thoroughly investigate.

See Clark Section, 1937 Composite Catalog.

CLARK BROS. COMPANY

Olean, New York, U. S. A.

CLARK

Export Office: 30 Rockefeller Plaza, New York. Midcontinent Sales Offices and Warehouses: Tulsa, Okla., and Houston, Texas. West Coast Office: Smith-Booth-Usher, 2001 Santa Fe Av., Los Angeles, Cal. Foreign Offices: 72 Turnmill St., E. C. 1, London, England; 4 Str. General Poetas, Bucharest, Roumania.

depth decreases, the lessening weight allows the sand to absorb water and the entire bottom becomes soft or "quicky." Confirming evidence of this can be seen in the appearance of water on moist surfaces in the channel as much as one-half mile ahead of a "head rise" in sufficient quantities to wet the surface and to flow in small rivulets.

The section of the river which we were able to observe lies in the southeast corner of Moore County and in the southern part of the west half of Hutchinson County, terminating at the highway bridge between Borger and Stinnett. This covers approximately 17 miles of river channel, in which we find buried pipe line crossings, pipe line bridges, a trestle-type railroad bridge and the highway bridge mentioned above. These facilities will be discussed in the following paragraphs.

Crossing No. 1 includes four lines, 8 inches in diameter and manifolded from headers which are 3,600 feet apart. One line and part of another were laid with 42-pound pipe, the rest weighing 28½ pounds per foot. Cast iron clamps, weighing 800 pounds each were installed at 45-foot intervals on each line. Lines were laid upstream in an arc thought to have a middle ordinate of almost 500 feet. Header outlets on the south bank were fitted with 8-inch gate valves, 30 inches apart, with long sleeve couplings placed about 2 feet north of the gates to connect the river lines. This header was about 75 feet south of the water's edge and 12 feet higher than the flood crest. The north header was similar, but did not have the couplings, and lay in a flat beyond the north bank.

Upstream Line

At 11 a.m. on May 29, the upstream line pulled out of its long sleeve coupling at the south header, followed at short intervals by the remaining lines. Before the movement stopped, the upstream line showed a gap of about 6½ feet, the next about 6 feet, the third about 5½ feet and the downstream line about 5 feet. As the lines moved, they carried their backfill toward the water, leaving a hole corresponding to the above dimensions about 60 feet from the water. As nearly as could be determined, the movement started about the time the water reached maximum height.

It was found the three upstream lines had broken at welds near the north bank but service could be resumed through the remaining line by welding a short piece of pipe into the gap. The river has not since permitted an examination of the crossing but it is reasonable to assume the lines were forced downstream until they were in tension from the current, and that movement then started. Side bends on both banks must have reversed themselves, the breaks on the north side possibly taking place as that happened.

Crossing No. 2 consists of four lines, 12¾ inches in diameter, laid in an arc upstream with a middle ordinate of approximately 500 feet, it being 5,220 feet from side bend to side bend. Headers are on the high banks on either side of the stream beyond the side bends. Pipe weighs 49.56 pounds per foot and 1,500-pound river clamps are installed at 20-foot intervals on all lines. Lines are welded throughout, each weld being reinforced with six straps.

Because of a bend above this crossing, the main current strikes the north bank about 500 feet upstream and then parallels the bank past the pipe lines. Light floods during the summer of 1936 washed out this bank for some distance and caused apprehension as to the safety of the lines. About 350 steel jetties were installed for bank protection. Part of these were set downstream at an angle of 30 degrees with the bank, the rest extending from the bank to the front string to hold it in the current. The jetties ended a short distance downstream from the downstream line. These jetties protected the bank and built up the bottom of the channel between the front string and the bank under light floods and withstood the maximum peak on May 29. However, they sank after the water started to fall and the sand became soft. This broke the cables with which they were anchored and protection was lost.

Crossing No. 2, showing bank cutting to right; flood at medium height

The bank cut back 44 feet to the north between May 29 and June 11. Since that time it has cut back an additional 80 feet with comparatively little water in the river. As the bank cuts back, the adjacent pipe is undercut by the water and sinks, later being again covered with sand. There is now a maximum depth of 10 feet on this line, with an average of 6 feet in the channel proper. In addition to the increase in depth, there has been a maximum lateral movement downstream of 6.7 feet near the center of the channel and of 8 feet near the north bank where the maximum depth is found.

Lines Undercut

A flat extends from the south side bend for about 1,000 feet into the river, terminating in a sand dune which is protected by vegetation and which is normally the south bank of the channel. Here the lines undercut without appreciable bank cutting and the lines sank to depths of 6 or 7 feet in 200 feet, without lateral movement.

Crossing No. 3 consists of four 10-inch lines, 42-pound pipe being used with 400-pound weights at 40-foot intervals. Headers are 6,600 feet apart, lying in the river but above the high-water mark. Drips are installed at the north header and the lines are curved upstream, the length of the middle ordinate and of the arcs being unknown. No failure occurred and no investigation is known to have been made to determine the condition of the lines.

Crossing No. 4 consists of six lines, with construction similar to No. 2. Pipe is 12-inch, 49.56 pounds per foot and it is 2,375 feet from side bend to side bend. There are 1,500-pound weights installed at 20-foot intervals and the lines are upstream about 250 feet in the center. Some straight line exists between the side bends and the upstream point, the arcs not being perfect. Conditions on the south bank were similar to those on crossing No. 2, with undercutting and settling occurring. However, the current was less severe and the settlement amounted to only about 3 feet in 150 feet.

The north bank differs in that a rocky point extends to the edge of the channel about 600 feet upstream from the pipe lines and high and rocky hills parallel the bank to a point some distance below the crossing. Rock and soil from these hills have built up a bank which resists current erosion. Pipe lines enter this bank about 4 feet below the level of the stream bed. As on crossing No. 2 the main current during high water strikes the bank a few hundred feet west of the lines and runs parallel to the bank past the lines. The heavy current may be found anywhere in the channel as the water falls. No bank cutting is found here, but the lines were undercut for some distance from the shore and both settlement and lateral movement took place.

Both movements started about 700 feet south of the bank, with the maximum settlement at 150 feet from the bank. Depths of 15 feet below the sand level are found at that point. The maximum lateral movement amounted to 24 feet on the up-stream line, this occurring 280 feet from the bank. Average depth through the 700-foot section is around 10 feet. Jetties similar to those at crossing No. 2 had been installed here. These also stood during the maximum flood but broke their anchor lines and washed out as the water fell.

The fact these lines could move as much as they have with gas pressure inside and without failure is an excellent testimonial for the strength of the pipe and for the welding work, done during construction. Had either been less than perfect, one or more of the lines would certainly have failed.

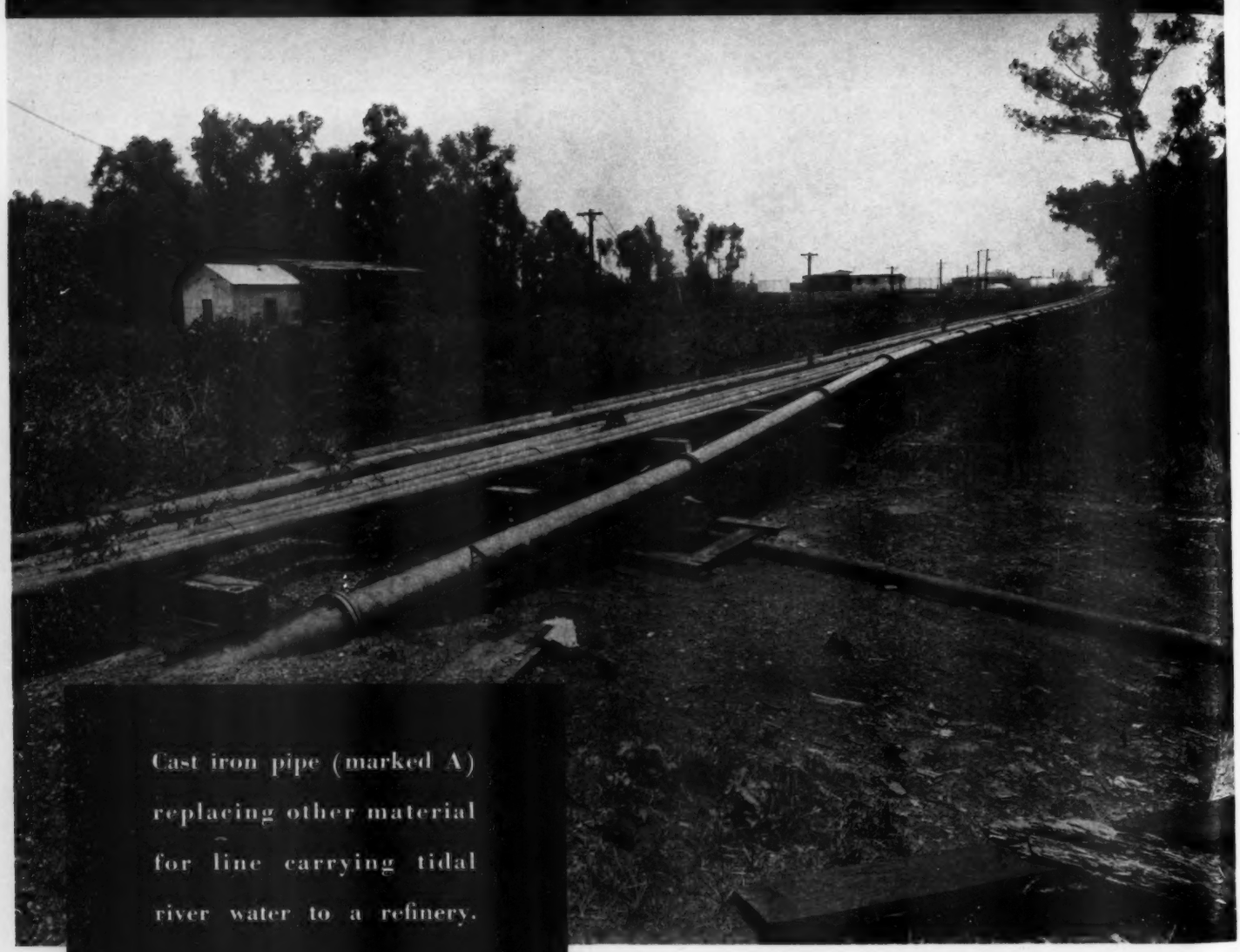
Crossing No. 5 is an overhead crossing on a new type of pipe line bridge. Piers consisting of three straight and four batter piles were driven on 80-foot centers. Creosoted wooden piling was used, penetrating 55 feet into the sand on the north half of the channel and 45 feet on the south half. An appropriate system of caps and braces strengthened the tops of these clusters, or piers. Pipe was spiral weld, 24 inches in diameter, with "wrinkle belly" expansion joints each 160 feet. Pipe stiffness was sufficient to span the 80-foot spaces between piers.

During the floods, drift lodged against the piers and the pressure of the current against the drift and piling caused a considerable disturbance in the current at each pier. As nearly as can be learned, these disturbances served to deepen the channel at each pier, after the peak of the flood had passed, and several piers failed completely, with others being badly weakened. At one place, the pipe spanned 240 feet, with inside pressure about 250 pounds.

Driving of the piling disclosed gravel strata on the south side of the river and it was necessary to jet the piles after depths from 15 to 25 feet were reached. On the north side, where pier failure occurred, these strata were not present and penetration was easier to obtain. However, there seems to be some indication the sand became tight at about 25 feet below the surface and it is generally believed that failure took place about that depth.

The assumption from this is that the channel deepened around the piers and the sand became

WHEN PIPE LINES CORRODE
replace with cast iron pipe



Cast iron pipe (marked A) replacing other material for line carrying tidal river water to a refinery.

SHORT LIVED refinery lines are a hindrance to production and a charge against maintenance far off-setting what savings there may be in first cost. Replace them with long-lived cast iron pipe and watch your maintenance cost per barrel of crude go down. No other low-cost material equals the ultimate economy of cast iron pipe for refinery lines which must resist corrosion effectively to give long, uninterrupted service. Cast iron pipe is procurable in bell-and-spigot, plain or threaded end, and flanged types, or with bottle-tight mechanical joints for high pressure. Diameters from 1¼ to 84 inches. Address inquiries to The Cast Iron Pipe Research Association, Thomas F. Wolfe, Research Engineer, 1015 Peoples Gas Building, Chicago, Illinois.

saturated to the depth of the first gravel strata or to about the 25-foot level where gravel was not present. Cross bracing then failed partially and the piles acted as cantilever beams with the force of the water becoming sufficient to break them. Since some of the bracing did not fail shear was probably a contributing factor. Failure occurring after the peak had passed is a further indication the sand is consolidated during rises and approaches fluidity as the water falls.

A second bridge, similar to the one described but several miles downstream had several piers which failed in part but none was lost completely, however, conditions of partial failure were similar.

Crossing No. 6 has two 12-inch lines, each approximately 2,200 feet long. Pipe is spiral welded, with quarter-inch wall and each line had 50 river clamps weighing 1,200 pounds each. These lines went out during the flood but we have no data on the breaks.

High water on Canadian River against trestle type bridge

Besides the above crossings, there were several minor ones which failed. One of these was a 4-inch, built of light pipe and insufficiently weighted. It was 5,160 feet in length, with an arc upstream, and pulled in two about one-quarter mile from the north bank. The section north of the break bent downstream with the current, but the other section cannot be located for a considerable distance from the break.

An 8-inch line, weighted and laid upstream, apparently reversed its arc and pulled apart at the north bank. A nearby 12-inch, also weighted and laid upstream, apparently failed in the same manner, except the break took place about one-third of the width of the channel from the north bank and at the point where the current was strongest. Accurate information on these lines is lacking.

A combination railroad and highway trestle, on wooden piling said to have only about 40-foot penetration failed, more than 200 feet of the structure going out completely. Piling bents were quite close together and drift extended from bent to bent, causing a partial dam. This built up the head on the upstream side, increasing the velocity and thrust of the water. At the same time, scouring effect was increased and the combination was too much for the pile bents to withstand.

Highway Bridge

The Borger-Stinnett highway bridge is a steel, multiple truss bridge. Piers consist of 7-foot diameter steel cylinders, extending 25 feet into the sand, with three 15-inch casings sunk below each cylinder to a gravel strata between 65 and 70 feet deep. Casings and cylinders were filled with reinforced concrete. Two cylinders were placed in each pier, with a beam connection between them for truss and floor supports. Fifteen-inch steel casings, filled with reinforced concrete and carried to the floor height, were used on the Plemons bridge, a few miles downstream. Both bridges have withstood all floods without indication of failure.

The railroad bridge at Canadian, Tex., is said to be founded on concrete-filled caissons, 90 feet in depth. Tests for depths of sand in the river at that point are said to have reached 210 feet and to have still been in sand. In addition to the known sand depth of more than 200 feet at Canadian, depths of more than 100 feet have been found in several instances and estimates of as much as 400 feet have been heard. That it is possible to build safe piers in the river, in spite of sand depth and without going to solid strata below the sand, is evidenced by the bridges described.

We can therefore conclude that any facility which is contructed in the river, with reasonable provision for strength, is safe during periods of rising water. Additional dangers arise, however, as the water falls, due to the absorption of water by the underlying sands and to shifting channels which are easily cut in the soft or "quick" bottom.

In buried pipe lines, sufficient weight must be incorporated in the pipe or by the addition of suitable outside material to insure positively against flotation. The writer formerly recommended twice the weight of the displaced water, but now believes the lines would be less subject to strain due to weight and still be sufficiently heavy to settle in the sand if the total weight approximates 50 per cent more than that of the displaced water. This will prevent floating and secure settlement below depths that can be secured with ordinary construction equipment, which settlement will eventually bury the lines to depths equal to that of the deepest channels cut in the river. Lines so laid in the Canadian will certainly reach depths of 15 feet and will probably approach 25 feet as they are subjected to excessively high floods. The rate of settlement will decrease as the depths increase.

Underground Water

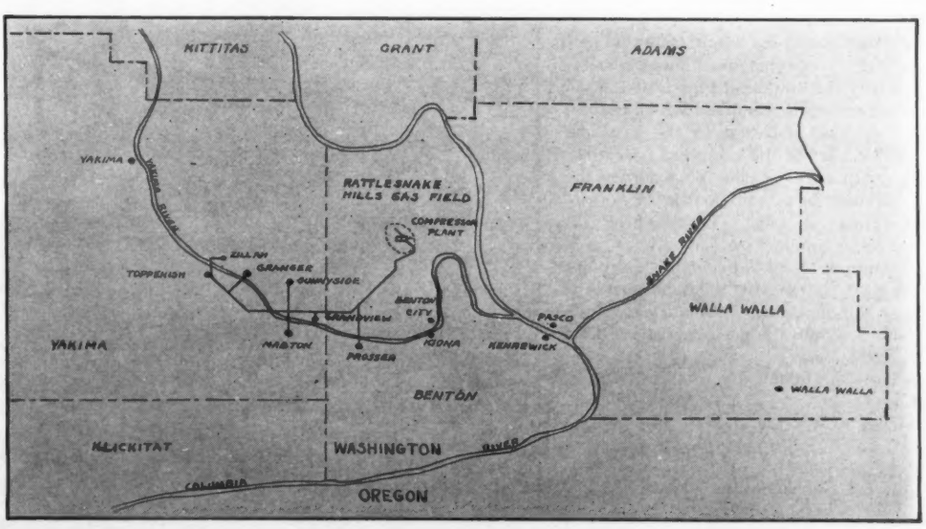
Underground water in the Canadian channel is always present so it is impossible to lay pipe lines deep enough to insure against under-cutting without excessive construction costs, especially since we know that depths of 15 feet would have to be exceeded. It further seems it is not possible to follow the usual custom of laying an arc upstream, irrespective of the amount of weight that may be provided, and prevent both settlement and downstream movement, unless the lines can be buried at least 15 feet.

Pile piers to support piping can be built with a satisfactory degree of safety, the span depending on the stiffness of the pipe. Piling, however, must have sufficient strength to overcome the bending movement and shear at the bottom of the softened part of the channel and have sufficient penetration to develop that strength.

Where continuity of service is an important factor, a multiple span, suspension type pipe line bridge, adequately founded on heavy piers possesses evident advantages which suggest its desirability over buried crossings. The design of such a bridge would balance the costs of piers and spans to secure the most economical structure and would include provision for temperature changes, inspection, painting and repairs. Lighter pipe could be used or a larger factor of safety secured against pressure stresses.

If still greater safety is desirable, a suspension span across the entire channel should be considered. Such a bridge would absolutely remove any danger of flood, since it would be founded on banks high above the river, and would possess all of the other advantages of the multiple span suspension type.

Any type of bridge that might be selected would relieve all anxiety as to the possibility of underwater breaks because of flood stresses, defective material or workmanship or corrosive deterioration with age. Corrosion is found to be present in most lines in the river and may become a serious factor. Nor can its effects be foretold by inspection, since the pipe will sink to such depths that inspection costs may equal or exceed that of new lines.



Gas pipe line system of Northwestern Natural Gas Corp., the only line in Pacific Northwest handling natural gas, which is secured from field in Rattlesnake Hills gas field in Central Washington

Modern Pipe Line Practice Uses Automatic Sampling

By L. G. E. BIGNELL

Like the major railroads the large pipe line systems have terminals and junctions where the products being transported are delivered or transferred from one line to another. For instance, a pipe line company may gather and transport 100,000 bbls. of specification crude oil from a Mid-Continent field and when this arrives at a junction point at some distance from the point of origin it is necessary to transfer this batch of oil to another pipe line system to be handled to destination. Both companies must handle other oil through their pipe lines to deliver the particular batch under consideration and therefore must know when the original batch of oil has reached the point of transfer. Likewise the company taking this oil for further transportation must know it has received the full quantity of oil of the required specification to deliver to the customer.

These transactions create only one of the many reasons why it is necessary to sample accurately crude oil or any of its products as they move through the pipe line. The capacity of the pipe and the rate of pumping permits the dispatcher to know when the required quantity of crude oil or gasoline has been moved but it is only by taking a representative sample of the material being handled that its grade and general characteristics can be known. It is always assumed the shipper is delivering the kind of product agreed upon but there are always possibilities of error so long as the human element has to enter into the transaction. So the practice of taking samples has been found helpful in checking materials moved and for a long time this has been done by various manual means. Recently the Stanolind Pipe Line Co. installed automatic samplers which reduce the personal equation to the smallest possible part of the sampling operation and in this way makes for accuracy.

Thousands of commodities are sampled in various ways to permit checks of various characteristics. Wherever this sampling is done entirely by a person there must enter into the operation a certain amount of decision made by the sampler. When the person is allowed to decide between two courses of action he is subject to the chance of error at least half the time. To reduce to the lowest possible factor this necessity for the operatives to use personal decisions in performing their tasks automatic sampling has been developed.

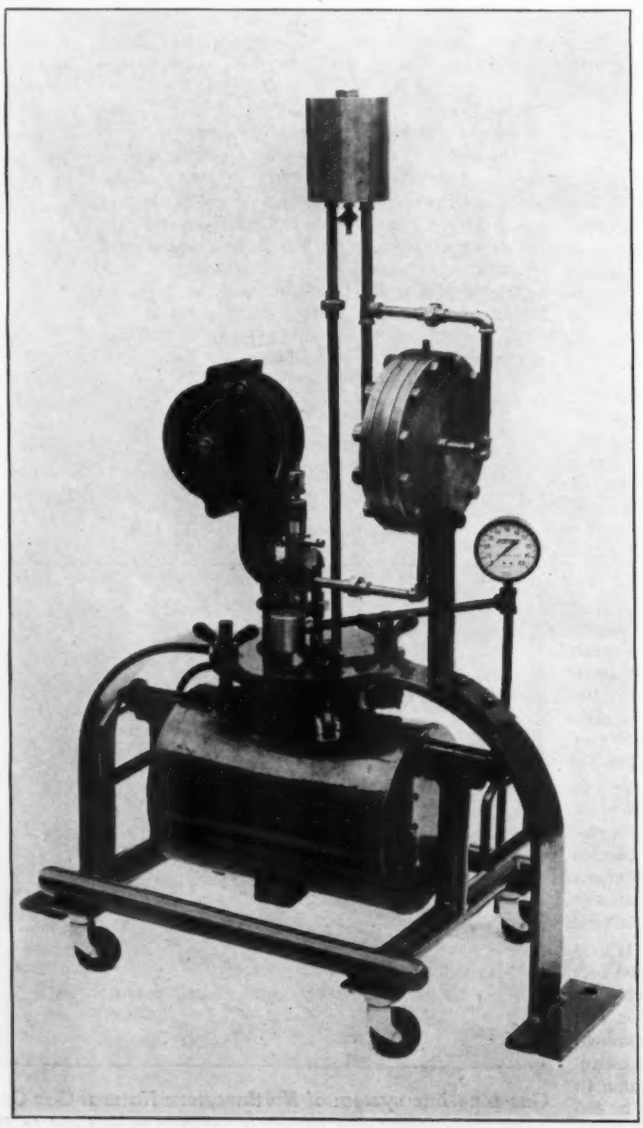
One of the older types of manually operated samplers consisted of a relatively short piece of three-eighths or one half inch tubing bent at the upper end and drilled with a series of small holes at the lower end and then inserted and sealed in the pipe through a hole drilled in the top wall of the pipe. This short section of pipe is fitted with a small valve and when the operator desires to secure a sample of the oil flowing through the pipe line he places or holds a pint or quart receptacle under the upper end of the curved pipe and turns the valve to permit the fluid to run into the measuring vessel. When it is filled it is emptied into an ordinary large size milk can. The operation is continued at intervals until the required amount of sample is placed in the sample can. This is then shaken and a small amount taken for hydrometer and centrifugal tests. Another portion might be set aside for laboratory test.

This, and other methods of sampling wherein the taking of the sample is left to the discretion of the operator, has many disadvantages. If the samples secured at different points along the line of movement of the shipment do not correspond the reports provide material for an argument as to methods of taking the sample or performing other manual operations. Also there are the chances of failure upon the part of the sampler to perform his duty at the right time or in the proper manner, not because of willful neglect, but because other duties may demand his attention at the time he should be taking samples

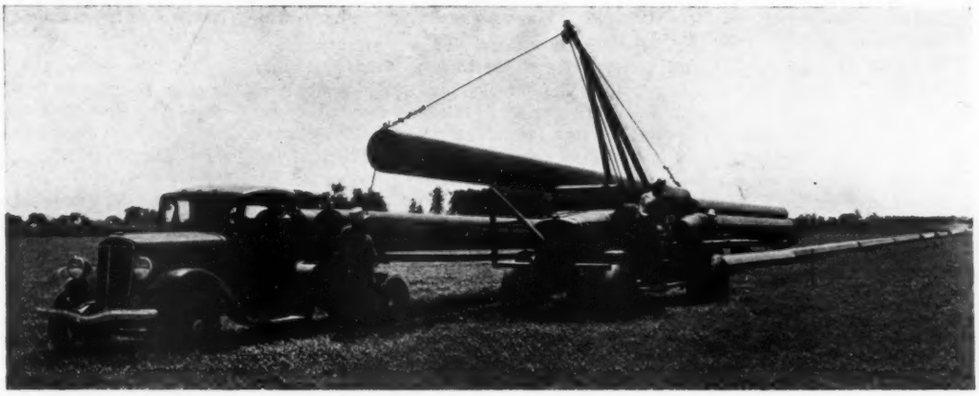
To eliminate as many of these undesirable features of sampling fluids in pipe lines the automatic sampler has been developed and is now being tried out at several points along the Stanolind Pipe Line Co. system and, if it proves to be as satisfactory as present tests indicate, its general use is predicted. The automatic sampler may take different mechanical forms but in general they must all be capable of taking from a flowing stream of oil within the pipe a true portion of the fluid passing a given point during a predetermined interval. This operation may be repeated at evenly or unevenly spaced intervals of time but to operate satisfactorily the automatic sampler must perform these functions without the aid of anyone and deliver the samples into a sealed container throughout the period of sampling.

The sampler as designed by Stanolind Pipe Line Co. and patent applied for consists of a section of three-eighths or one-half inch tubing drilled with several holes on the upstream side of the lower end and this tube is inserted into the center of the pipe line pipe and securely fastened in this position. The upper end of this tube terminates in a valve. This valve is automatically opened and closed by a clock actuated mechanism at any interval and is held open for a time increment necessary to permit a rubber diaphragm to be filled with fluid. The diaphragm is calibrated to hold a known quantity of fluid and under normal conditions is collapsed by the hydrostatic pressure exerted by a small column of water fed into the chamber containing the diaphragm from a reservoir mounted at about 12 inches above the diaphragm.

When the clock, which actuates the cam which in turn depresses a lever attached to the valve mechanism, has



Automatic time sampler for taking samples from pipe lines



Showing pipe being strung with Side Boom.

DUNN

In Record Time

Unloading and stringing 150 miles of 24″ Pipe in 42 working days, for the Panhandle Eastern Pipe Line Company, is only one example of outstanding performance recorded by Dunn.

Finished July 8, this particular record was scored despite 4 loops made between Liberal and Louisburg, Kansas, together with 40 miles of sand dunes traversed. T. R. Jones, Inc., was general contractor.

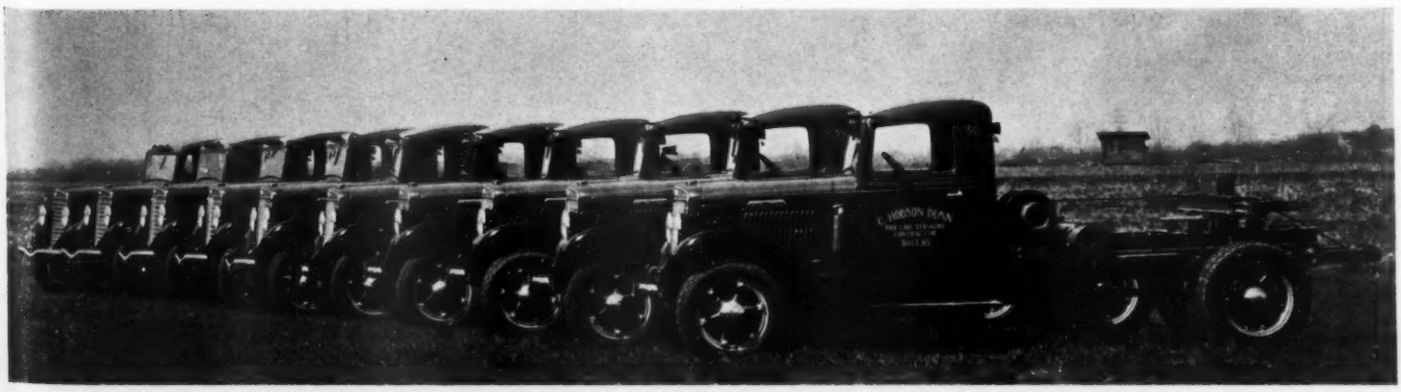
With a large fleet of International CS 35's specially designed for pipe line stringing work, Dunn is in position to give pipeline contracting firms record service in every instance. May we serve you?

"It Must Be Dunn"

C. HOBSON DUNN

Pipe Line Stringing Contractor

Magnolia Building, Dallas, Texas



reached the time for opening the valve the force of the oil flowing through the pipe line under pressure sends the sample up through the tube into the diaphragm and exerts sufficient pressure inside the diaphragm to force the small body of water surrounding the outside of the diaphragm back to its reservoir.

When this rubber diaphragm is filled with fluid the cam on the clock releases the lever and the valve on the sample tube closes. The next operation is to open a second valve connected with the diaphragm and releases the collected sample into a sealed sample can placed beneath the diaphragm sampler. The water collected in the small reservoir above the diaphragm creates sufficient pressure on the outside of the rubber diaphragm to squeeze all fluid out of it into the sealed container.

Time Sampling

This operation of taking measured samples at spaced intervals is continued through any predetermined period of time. The sampler is usually set to operate for a period corresponding to the calculated interval required to transport a known quantity of oil or other fluid through the pipe line and past the sampling device. If large volumes of fluid are being handled, the sampler may be set to take samples at fixed intervals through a 24-hour period. This composite sample is caught in the sample can and at the end of the sampling period the can is removed and another put in its place under the sampler.

The can holding the composite sample taken during the sampling period is provided with two trunnions which are fitted into bearings on the pipe frame carrying the sample can. When the can is removed from the sampler it is fitted with a tight lid and then rotated a sufficient number of times to thoroughly mix all the fluid within the can. The lid is then opened and a portion of the mixed sample is taken for testing in various ways.

The liquid being sampled is not allowed to come in contact with the air at any time until it is being tested. The sample container is sealed and provided with a pressure release valve for safety. This relief valve opens and permits accumulated gas or vapor to escape to the atmosphere, maintaining a constant predetermined pressure within the container as additional liquid is added.

If the pipe line company is pumping a quantity of oil to be delivered to another transportation company at some junction point the station tender at the delivery point would be instructed to set the sampler to take samples at desired time intervals throughout the time required to transport this batch of oil from one terminal to the other. For instance, the clock may be set to trip the lever every 30 minutes and the cam operating this lever is so calibrated it will hold the lever down and the valve open for a time interval sufficiently long to permit the rubber diaphragm to be filled. Assume the diaphragm will hold a pint of fluid. It is desired to fill a 5-gallon sample can within 24 hours, so instead of setting the clock to take a sample every 30 minutes the time is increased between samples to 36 minutes and 40-pint samples will be secured. A counter can be placed on the lever actuating the valve to record number of samples taken.

Batch Samples

If the pipe line should be batching oil in comparatively small volumes through the line it will be necessary to take samples more frequently than when a large volume of oil is being handled. The portion of the oil which contains a portion of each batch is known as "line wash oil" and this must be sampled accurately and frequently to determine just where the good oil for each batch is in the pipe line.

To take these frequent samples and make prompt hydrometer tests, another type of sampler may be used. This consists of a tube inserted in the pipe as previously described but this tube terminates in the bottom of an inverted cone-shaped vessel mounted inside of another cylindrical vessel. The flow of oil from the pipe line is controlled by a valve in the vertical tube and the operator opens this valve and permits the inner vessel to fill to overflow with pipe line fluid. The oil spilling over top of the inner vessel is caught in the outer vessel and directed into a large can.

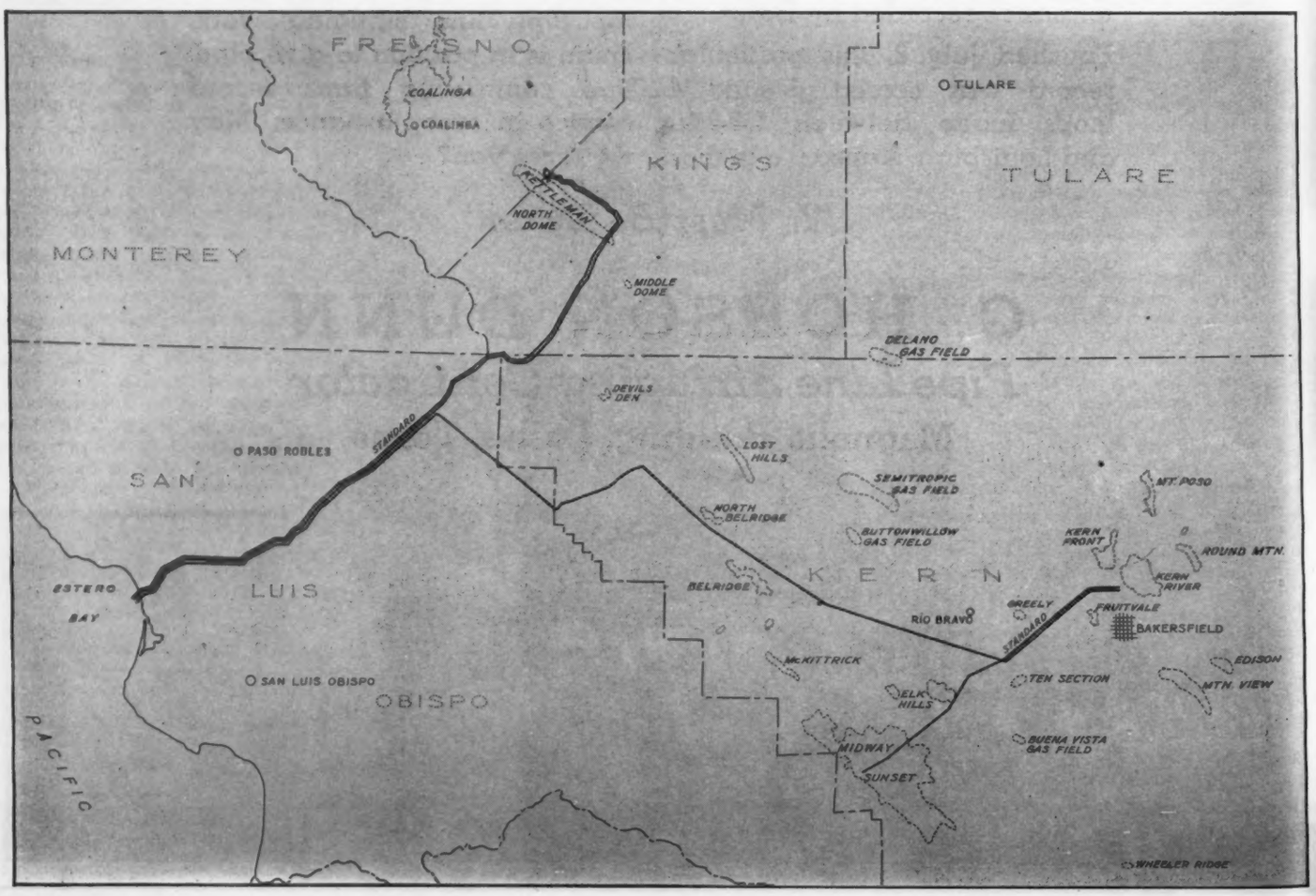
While the oil is flowing from the pipe through the tube and into the inner vessel a hydrometer is floated in this oil and the operator watches it closely to note change in gravity of the oil. This reading indicates when the oil in the line changes and permits the operator to notify the dispatcher time of arrival of the last oil in one batch and the first oil of another batch.

Manual Check

Of necessity this sampling of oil at close intervals is best done manually because it is essential immediate check of the sample be made and this could not be done conveniently with the automatic sampling device, because of its more complicated mechanism.

The use of an automatic sampler for crude oil and its products will undoubtedly grow in importance and improvements will be introduced into the design until such time as a perfected system is built up for the taking of accurate samples of fluid flowing through pipe lines.

STANDARD OF CALIFORNIA KETTLEMAN HILLS LINES, INCLUDING LATEST FROM RIO BRAVO TO ESTERO



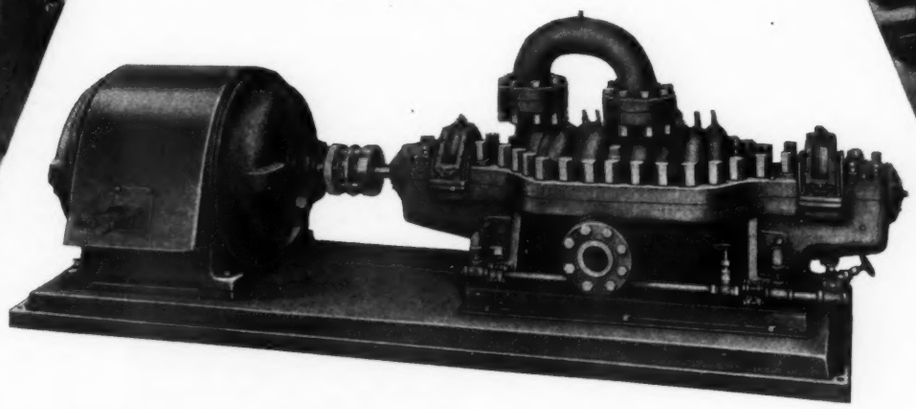
GOULDS PUMPS
FOR ALL
PIPE LINE SERVICES

Dependability and long life of pumping equipment are of vital importance to all pipe line operators. Shutdowns, with the lost revenue, are expensive. The ability to operate over long periods in severe 24-hour per day service is a fundamental characteristic of GOULDS PIPE LINE PUMPS. Hundreds of installations are proving this every day.

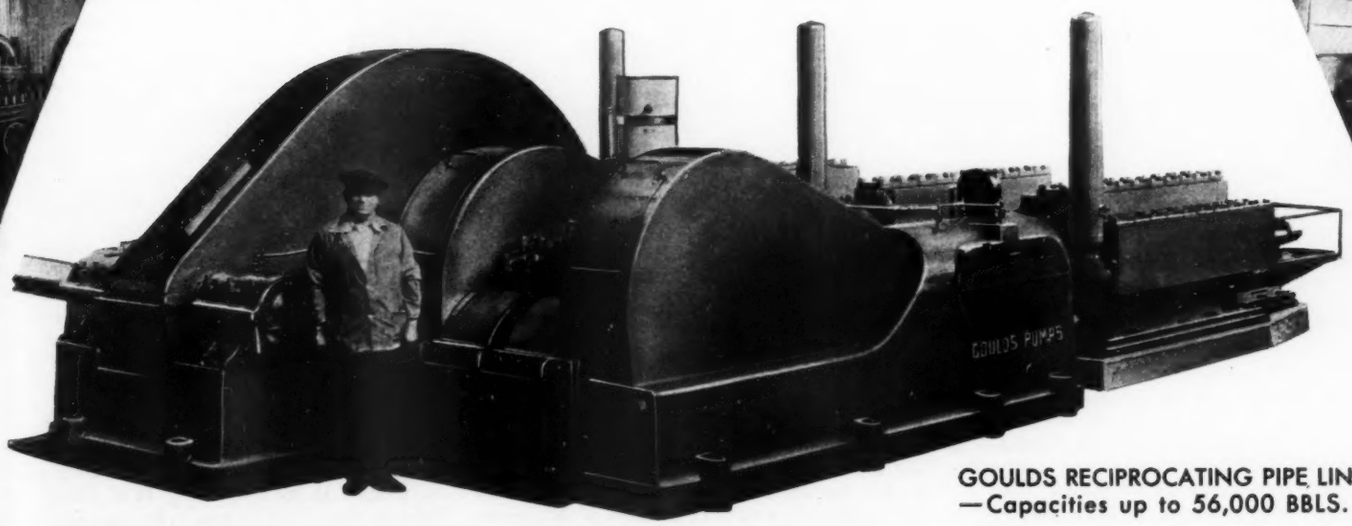
There is a Goulds Pipe Line Pump—centrifugal or reciprocating—for every pipe line service. Benefit by the experience of scores of leading operators and install a GOULDS on that next job.

A discussion of your requirements incurs no obligation. It may lead to new operating economies. May we have your next specifications?

Goulds Line of Pumps of all types for the petroleum industry is most complete. All branches—Refinery, Gathering, Production, Bulk Stations, Natural Gas, Absorption Plants—will find an efficient, trouble-free unit ideally suited to their most exacting requirements. *Complete descriptive literature on request.*



GOULDS CENTRIFUGAL PIPE LINE PUMPS—Capacities up to 77,000 BBLS. per day



GOULDS RECIPROCATING PIPE LINE PUMPS
—Capacities up to 56,000 BBLS. per day

GOULDS PUMPS Inc.

SENECA FALLS N. Y.

ATLANTA, BOSTON, CHICAGO, HOUSTON, NEW YORK, PHILADELPHIA, PITTSBURGH, TULSA. Representatives in all Principal Cities

Humble Butane Line Supplies New Polymerization Units

In July, 1936, the Humble Pipe Line Co. placed in operation a gasoline pipe line extending from London gathering station, near Overton, Tex., to the Humble Oil & Refining Co. Baytown refinery, a distance of approximately 300 miles. The line was built for the purpose of transporting to the Baytown refinery casinghead gasoline, propane, and butane produced in the East Texas field. At the refinery the mixture is processed through a new stabilization unit, and the lighter fractions are used as charging stock for the recently completed polymerization plant. In the building of the line certain sections were converted from the then existing crude pipe line system for which reason the gasoline line route parallels the crude system. Other sections were built by laying new line, and in the end a single all-welded 8-inch line was provided.

Before moving any gasoline down the line, the entire system was thoroughly cleaned by pumping small batches of water, kerosene, and caustic solution, each batch separated by a pipe line scraper. The last batch of solution was followed with water, a scraper, and 18-pound casinghead. This cleaning procedure proved very satisfactory and resulted in a minimum quantity of off-color gasoline. Since the same equipment was used to pump the cleaning solution as was ultimately to pump the gasoline, the cleaning procedure gave the line and pumping equipment a thorough test before any gasoline was moved. When the gasoline was finally started out of London, some difficulty was experienced in removing, or displacing, all of the water in the line, since due to rather slow pumping rates, the water would accumulate in the low points. As soon as sufficient stock was available, however, and maximum pumping rates could be established, the last traces of water were soon displaced with the aid of additional scrapers equipped with high-grade rubber discs.

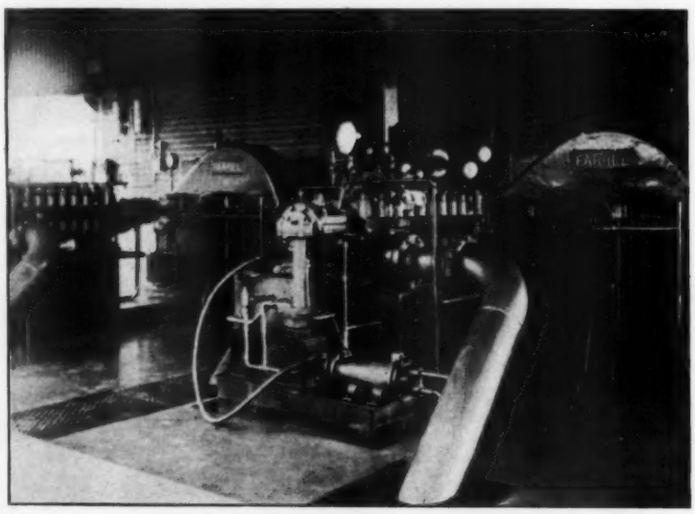
At the gathering station at London (shown in photograph No. 1) casinghead gasoline containing large quantities of butane and appreciable quantities of propane is received through the metering station from several different sources. The product first moves into the "settling drum," which is a horizontal 8 by 30-foot tank installed for the purpose of removing water or foreign matter prior to the metering operation. Since the mixtures to be handled in this system are extremely volatile and eventually will be as high as 65 pounds Reid, all equipment is designed for working pressures as high as 150 pounds. Provisions were made to maintain constant pressure on all equipment by the installation of gas line to inject residue gas from a nearby gasoline plant. The gas in or off any particular piece of equipment is held at the desired pressure by the installation of suitable regulators; and a pressure well above the vapor pressure of the product is carried at all times. The settling drum is designated to operate approximately full, the level being controlled by a liquid level regulator. Since gasoline is received into this drum at rates of several hundred barrels per hour, a vent or additional overflow tank is provided to handle the overflow should some regulator fail to function. An alarm signal is also included which immediately notifies the operator of failure of any control mechanism which would cause the settling tank to overflow into the vent tank. The vent tank, being a horizontal 10 by 30-foot tank, has sufficient capacity to handle the stream until the proper regulation can be reestablished. In the event such is impossible, however, the vent tank relief valves will open and allow the stream to move to an open flare pit where it is burned. A still further precaution includes a regulator on the upstream side of the settling tank which will close, shutting down the incoming stream. Provision is made to empty the vent tank by merely blowing the contents on through the system with residue gas.

Under normal conditions the product passes through the settling tank and into the meter manifold, where it is measured by positive displacement type liquid meters which are thermostatically controlled to read in net gallons at 60 degrees. After leaving the meters the product moves into one of two 2,500-bbl. Hortonspheres (shown in photograph No. 2). The spheres are operated at a pressure well above the vapor pressure of the liquid at existing temperatures, but some 10 to 15 pounds less than the settling tank; however, they are designed for a working pressure of 150 pounds. The flow from the settling tank through the meters and into the spheres is controlled by a back-pressure regulator between the meters and the spheres. This regulator is operated by the liquid level regulator on the settling drum. The spheres are equipped with gauge columns, dial indicating thermometers, and sampling connections. Safety measures include sufficient relief valves, bursting heads, and a separate dump line with remote gate. The spheres are also equipped with inlet and outlet gas lines with regulators to maintain the desired pressure. Sufficient pressure is maintained so no appreciable vaporization will take place, and proper pressure will be carried on the pump suction.

A slip stream passes from the downstream side of the meters to recording vapor pressure machines, which enable the operators to watch the vapor pressure of the stream at all times. Another slip stream moves to a sampler which is designed to take a continuous proportionate sample of the stream which is analyzed by the laboratory for purposes of settlement between the companies.

About twice each month all meters are accurately checked against a calibration tank of known capacity (shown in the center of photograph No. 1). It is of 1,000-gallon capacity, and at the points where the measurements are taken the tank is of small diameter which reduces to an absolute minimum the possibility of errors in gauging. In making a meter calibration the stream is cut through the calibration tank until the tank is filled; the liquid is then forced out with residue gas until the level is in about the center of the lower dome section; the opening gauge on the calibration tank is then read very carefully, after which the stream is again switched through the tank with an opening meter reading at precisely the time the stream is switched. As the level shows up in the upper dome, the stream is switched out of the calibration tank with a closing meter reading at precisely the time the switch is made. The volume shown by the meter is then compared to the volume in the calibration tank, both corrected to 60 degrees, and the difference between these two volumes indicates the accuracy of the meter. Since the calibration tank was originally measured by representatives of the State Bureau of Weights and Measures, it is assumed to be correct, and if the meter fails to check this volume the meter is said to be in error. The meters are so designed they can be readily adjusted to a condition of accuracy whenever necessary. Experience has shown it is not uncommon for these meters to check within one-tenth of 1 per cent.

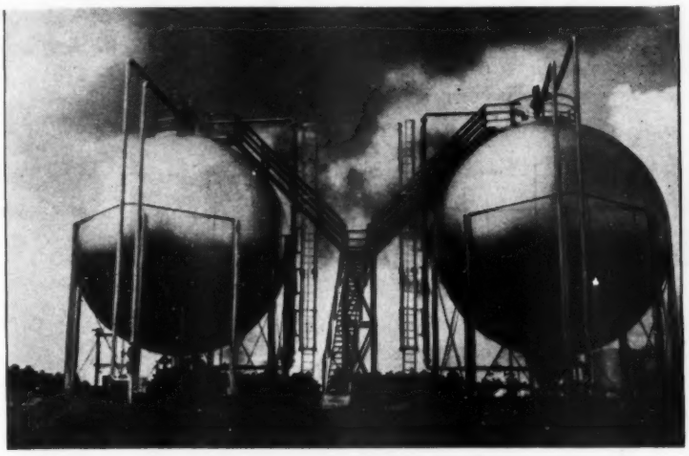
The pump station is located some 100 yards from the spheres and the metering station. Two 9-stage centrifugal pumps, connected through speed increasers to 300-hp. gas engines, are used to pump the product to Baytown, Tex. (The pumps and speed increasers can be seen in photograph No. 3.) In order to prevent packing gland troubles the pumps were designed with a mineral seal oil circulating system. Since suction pressure is carried on both glands, the oil pressure on the glands is held slightly higher than the suction pressure, which eliminates any leakage of volatile liquid from the glands. Originally the volume to be moved



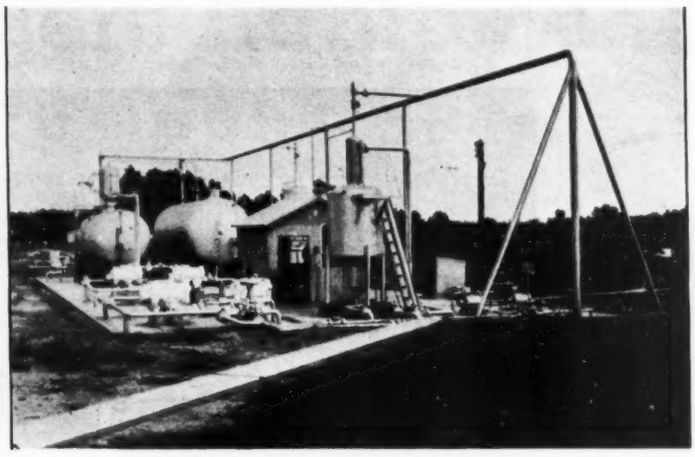
Pumping equipment on butane line

was approximately 11,000 bbls. which is the capacity of one pump operating at 700 pounds line pressure. Since operation was started, however, with volumes put into the line whenever it became necessary to make a water spot in order to repair a serious leak.

found. In the repairing of leaks the watchword is "safety," and special crews have been organized to handle repairs on this system. A complete set of spark-proof tools is used by each repair crew. The equipment also includes first aid kits and fire extinguishers, and every possible precaution is used to prevent or to take care of an accident.



Pressure tankage on butane line



Gathering plant in East Texas field

the volume of fluid to be pumped has increased and at this time a booster station has been placed in operation at Hearne, Tex., midway between London and Baytown. With the booster station in operation the line capacity is approximately 15,000 bbls.; and additional boosters are now being installed at mid-points between London and Hearne and between Hearne and Baytown, the addition of which will increase the line capacity to approximately 20,000 bbls.

Additional production is received into the main line from the Humble Oil & Refining Co. Conroe gasoline plant through a combination 3- and 4-inch welded line which extends from the Conroe gasoline plant to Satsuma, the location of the last booster station. This combination line is approximately 28 miles long, and still further production will soon be moving into this line from the Humble Oil & Refining Co. new Tomball gasoline plant. The volume produced by these two plants is of no great magnitude and will be pumped into the line at the rate at which it is produced. An orifice meter was installed on the 4-inch line at the point at which the 4-inch line ties into the 8-inch main line. This meter was installed in order that the volume delivered into the main line at this point could be checked against the amounts pumped by the two plants. In this way possible leaks in the 4-inch system can be readily detected.

Back-Pressure Regulators

As the stream moves into Baytown, it first passes through a back-pressure regulator and into an 8 by 30-foot settling drum similar to the installation at London, Tex. The liquid then flows out of the top of the settling tank into the meter manifold and through one or more of four meters which are duplicates of those at London. The stream then moves through a second back-pressure regulator and into the Baytown storage from which it is charged directly to the stabilizing unit. The first back-pressure regulator was installed to prevent excessive pressure on the settling tank or the meter manifold, while the second was installed to maintain sufficient pressure on the meters to prevent vaporization.

The Baytown installation also includes calibration tank, recording thermometer, and orifice type flow-meter. Provision was also made, by means of a relief valve upstream from the back-pressure regulator, to relieve the pressure on the line should a gate be accidentally closed. This regulator is set to open at approximately 300 pounds and relieve the pressure into an open flare pit. The water settling tank is likewise protected, and an ordinary displacement type water meter was installed on the water outlet from the settling tank in order to be able to compare volumes of water drawn off

The main line system has been operating for about a year and so far the operation has been very successful. No serious line breaks have occurred; however an occasional leak has been

Pipe Line Earnings Improved But Taxes and Costs Are Up

By H. STANLEY NORMAN

NEW YORK, Sept. 14.—Improved earning ability of other branches of the petroleum industry during the past and present year was shared by the transportation division. Coupled with the call on pipe lines to handle increasing volumes of petroleum and gas are higher operating expenditures and additional outlay for materials and supplies.

While earning capacity showed a sharp recovery in 1936 from a slump which reached its lowest point of a decade in 1935, the carriers were saddled with a proportionately higher tax burden. On the basis of activity during the first seven months, this year should compare with 1933 in earnings and expenditures probably will approach the levels of 1928, 1930 and 1931. Last half year expenditures probably will far exceed those of the first six months, but it is hardly likely spending requirements of 1929 will be reached.

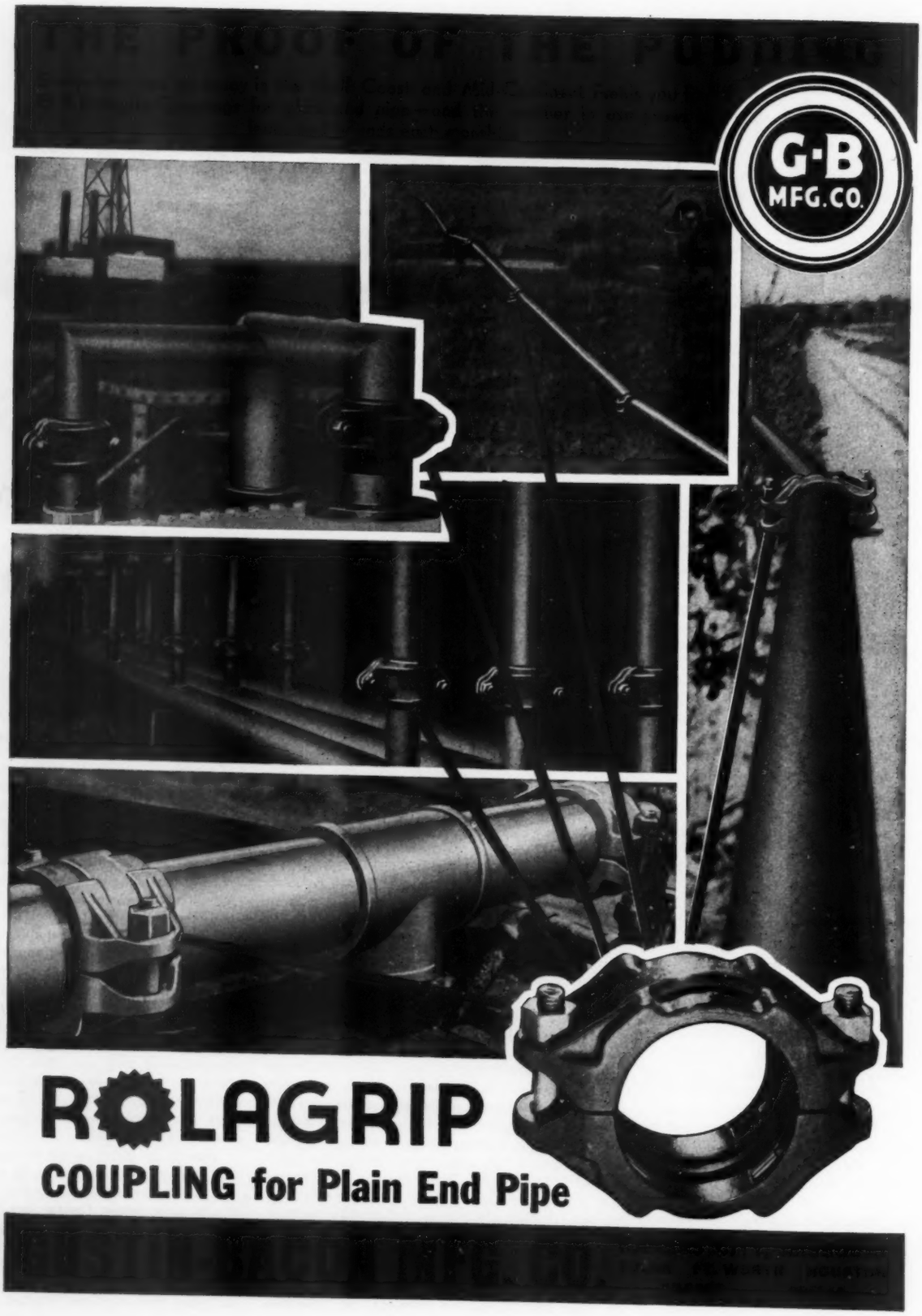
Reports to the Interstate Commerce Commission show to what extent all conditions, except taxation, improved in 1936. While the recovery from 1935 ebb involved higher operating expenditures and higher taxes, the operating income increased. Comparison of current operating income with 1932 and 1933 and the advance registered in 1936 over 1935 is the more indicative of improvement in view of the general rate reductions during the latter part of 1933 and 1934. There is a further hearing now pending on docket of the I.C.C. regarding interstate transportation rates, but no date has been set. There is a division of opinion whether a further reduction in rates is advisable. A majority probably favors continuance of the present tariffs.

The one curve which has been climbing steadily since 1931 is that of payments by interstate pipe line companies to the tax collectors at Washington and state capitols. There was a slight flattening of the tax payment curve during 1934 and 1935, but a straight line was resumed last year.

Additional pumping facilities, required loops and new construction has turned the curve of capital investment upward since 1934, but the final 1936 total of $773,742,828 is still far short of the all-time peak of $845,049,923 reached in 1931. The figures cover only interstate crude and gasoline lines. The vast network of intrastate lines owned by parties not subject to interstate regulations represents probably as much as 50 per cent of the interstate investment. Expenditures for materials and supplies by the more than 50 companies operating interstate oil and gasoline lines totaled $9,297,514 in 1936, an increase of $666,190 compared to 1935. The extensive reconditioning programs, coupled with several major jobs of increasing capacity and new construction this year, probably will boost the 1937 material and supply bill to near the 1932 level or even may approximate the totals in 1930 and 1931 in excess of $13,000,000 both years.

Expenditures for materials and supplies reached a 10-year low point in 1935 of only $8,631,324. Since 1927, until last year, expenditures for materials and supplies has been generally downward with minor exceptions in 1929 and 1934. The major part of the slump from a peak of $14,400,937 to the decade's minimum of $8,631,324 for materials and supplies was in 1932 when all other phases of the business hit the skids.

Due to the much larger volume of traffic handled during 1936, the curve of operating income was thrust upward at a more rapid rate than those of any other phase. Income has been subjected to more violent fluctuations. Starting in 1927 when the net income totaled $93,238,736 for 33 interstate operating companies, earning power rose rapidly to an all-time peak of $135,420,772. During the next six years, the earnings skidded consistently and the rate of decline was accelerated in 1933 and 1934 when transportation rates were reduced to their existing level. With income again on the increase and apparently due to continue in that trend due to growing traffic, the question of rates is again raised.


G-B
MFG. CO.
ROLAGRIP
COUPLING for Plain End Pipe

1937 Field Gaugers Equipment Shows Improvement

By OTTO D. STALLARD, Jr.
Superintendent of Gaugers, Magnolia Pipe Line Co.,
Dallas, Tex.

In the past 10 years considerable improvement has been shown in field gauging equipment as used for measuring, sampling and testing crude oil. The change primarily was brought about by the American Petroleum Institute with its efforts toward standardization of sampling and tests in the inspection of oil and the standardization of measurements in the strapping of tanks.

The field gauger is furnished equipment as follows: Gauge line, thief, thermometer, thermometer case, hydrometer, hydrometer case, test can or composite sampler, electric centrifuge machine, centrifuge tubes 12.50 cc. or 100 cc. type, thermometer for sample and bath, sample heater, test by sight glass, wrench, equipment case, seal carrier, gasoline dispenser, safety lantern and equipment rack. Where the gauger makes his own strappings, which are later checked by his chief gauger, additional equipment is furnished, such as, strapping kit, sectional ladder, ladder rack and circumference marker. This equipment has been used for a number of years and meets all present-day requirements in the Mid-Continent field.

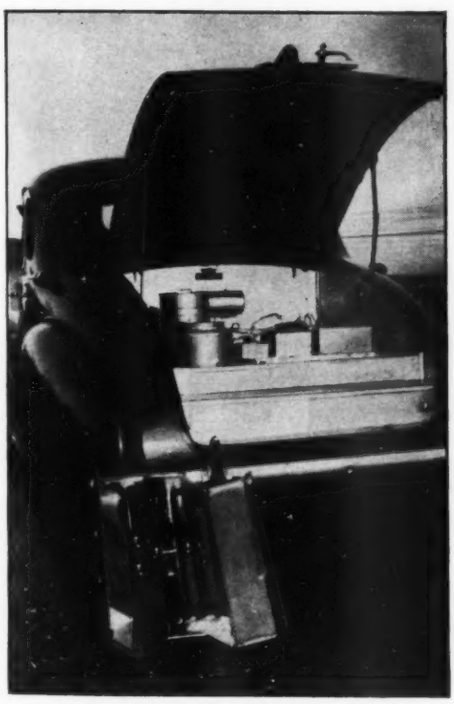


Figure 1

In reality the man employed to use the above equipment and make the necessary tests should be known as a "crude oil inspector" instead of a "gauger," for gauging is only a small part of the work at hand.

The drawings illustrate old equipment that has been modernized and new equipment now in use: The thief is used for obtaining spot samples and testing the contents of the tank bottom. It is equipped with a windshield for protection to the hydrometer when taking the gravity, a hatch-hook for holding same vertical in the hatch and open-flow cocks for taking samples for the centrifugal test. The b.s. and w. gauge gives the exact height of the basic sediment line on the tank bottom.

The No. 6 Sampson spot sash cord or No. 2 sash chain is marked every 2 feet so that the gauger will always know the exact location of the thief in the tank when making an inspection. (Figure 2-B).

Composite Sampler

The test can or composite sampler is used for the hydrometer test and a sample of same is taken from the open-flow cock on the side for the centrifuge test. (Figure 8-A).

The electric centrifuge machine is run direct from the car battery and does not pull more electricity than the average pair of headlights. There are two types available, the 12.50-100 per cent A.P.I. tube type and the 100 cc. A.S.T.M. type. The original cost is the only disadvantage which would be quickly absorbed with repairs to the average hand machine given like service. (Figures 9-C and 9-F).

The 12.50 cc. 100 per cent A.P.I. type tube or the 100 cc. A.S.T.M. type tube may be used. Tubes when purchased meet the A.P.I. or in case the 100 cc. type tubes are used, the A.S.T.M. specifications as to limit of error. (Figures 10 and 11).

The sample heater is installed in the rear of the car, regardless of type, along with the rest of the equipment, the temperature of the bath being controlled by the adjustable thermostat on the upper hose connection of the car motor. Two types of heaters are available, one for the 12.50 cc. 100 per cent tubes and the other for the 100 cc. tubes. (Figures 13-A and 13-B).

The equipment case has compartments for gauge line, bob, thief, hydrometer, thermometer, either type of centrifuge tubes, test by sight glass, waste and run book. It is used by the gauger to carry all necessary equipment for a satisfactory test to and from the tank or tanks being inspected, leaving one hand free in the interest of safety.

A right-handed gauger carries his equipment case in the right hand and sets the case to the right of the gauge hatch, where a left-handed gauger carries his equipment with the left hand and sets same to the left of the gauge hatch for the inspection. This eliminates criss-crossing of hands and equipment and speeds up the tests. (Figure 17).

To protect the equipment, racks should be built

(Continued on Page 138)

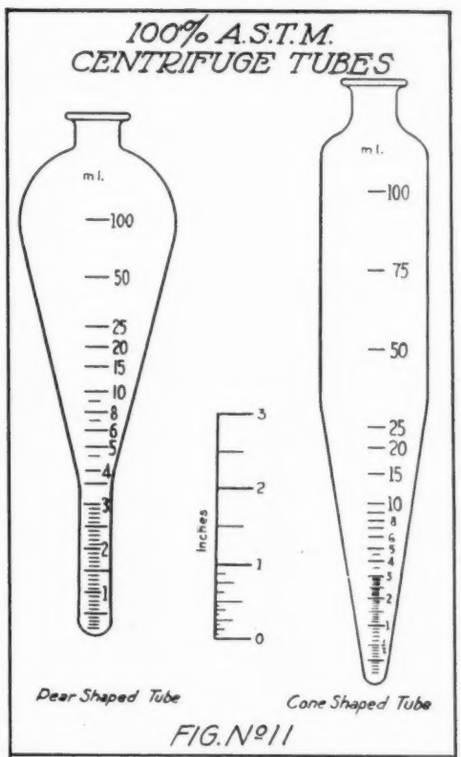


FIG. Nº 11

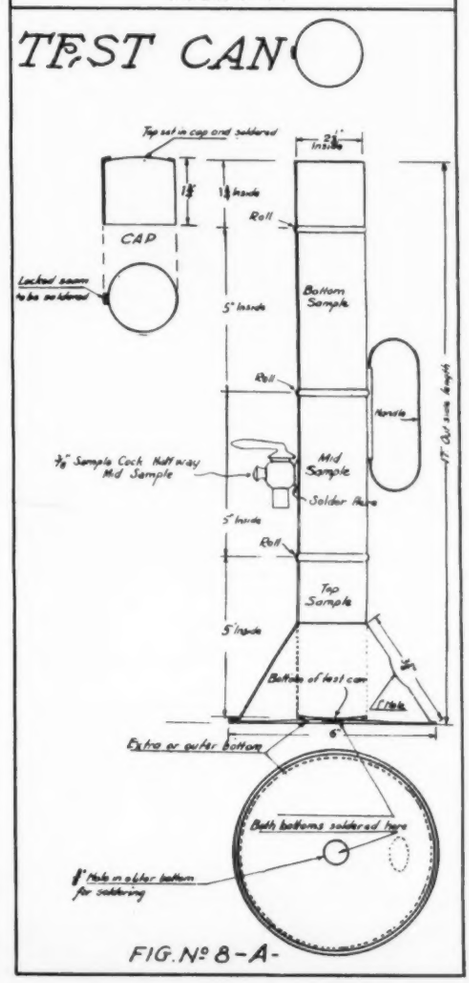
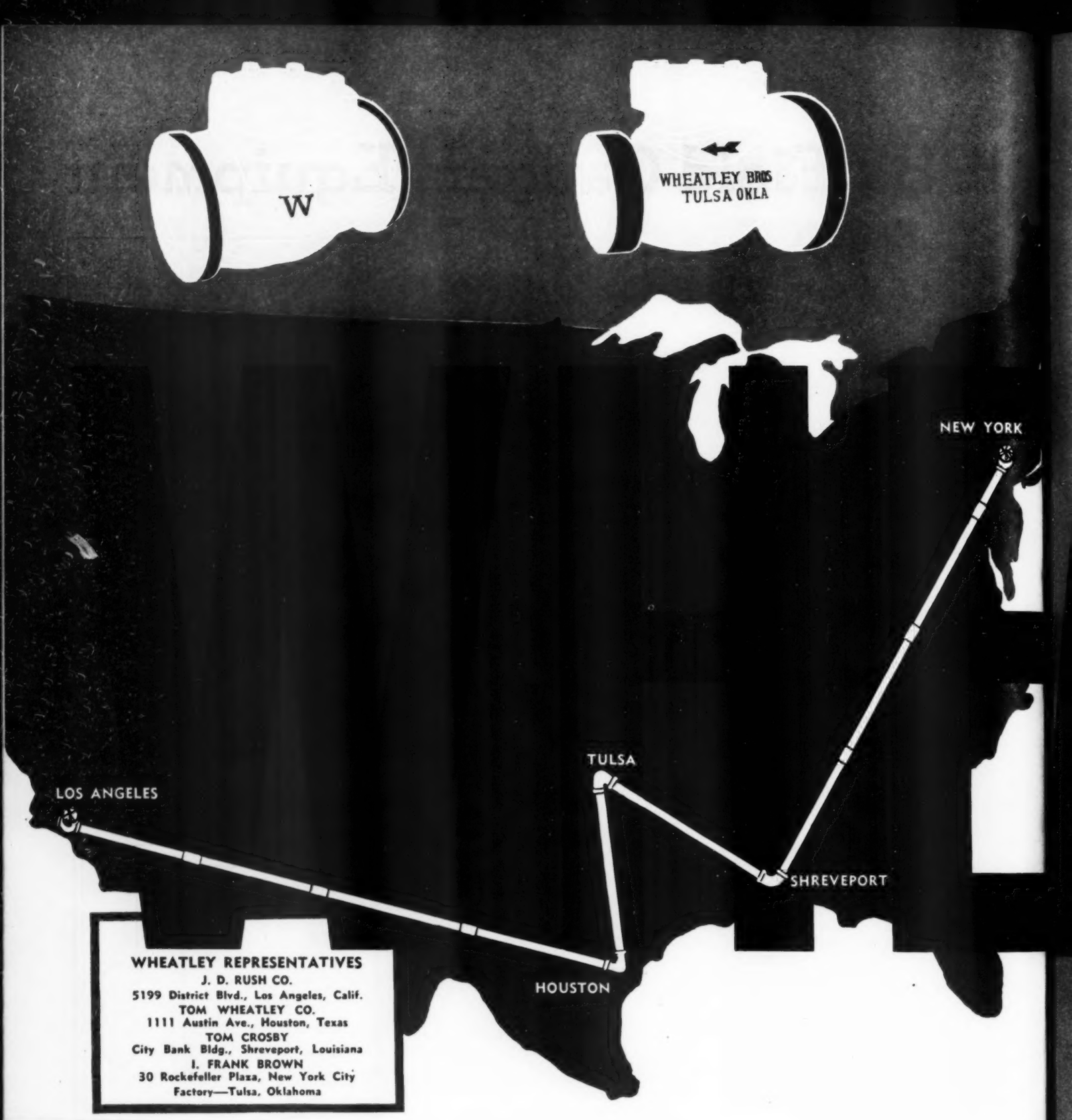


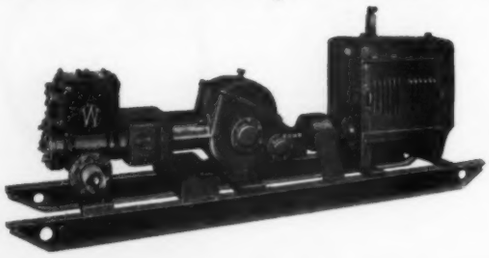
FIG. Nº 8-A-



WHEATLEY REPRESENTATIVES
J. D. RUSH CO.
5199 District Blvd., Los Angeles, Calif.
TOM WHEATLEY CO.
1111 Austin Ave., Houston, Texas
TOM CROSBY
City Bank Bldg., Shreveport, Louisiana
I. FRANK BROWN
30 Rockefeller Plaza, New York City
Factory—Tulsa, Oklahoma

Over a period of twenty-one years our pumps and valves have helped in the distribution of millions of barrels of oil and refined products.

Quality products—embodying the most efficient design, skilled workmanship, and lasting materials—have kept the name WHEATLEY at the top.



Performance is the test that tells!

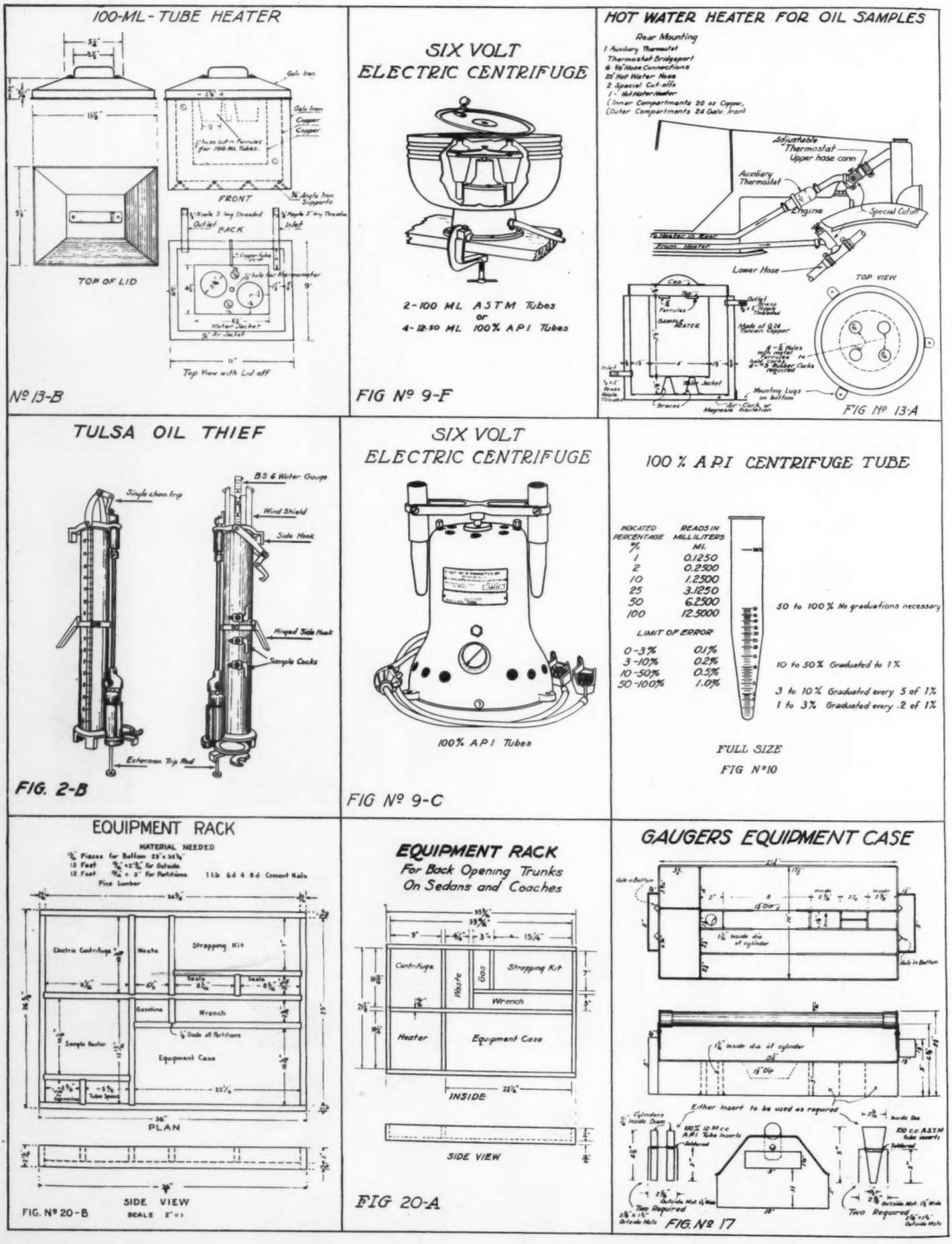
WHEATLEY BROS., PUMP & VALVE MANUFACTURERS
TULSA . . . . . OKLAHOMA

WHEREVER THERE ARE
PIPELINES THERE ARE

ATLEY

PUMPS &
VALVES

of light weight material, of the removable type, providing a place for everything and everything in its place. To further protect the equipment the trunk or turtle-back is enclosed with three-ply veneer, this is given a coat of primer, then aluminum enamel, along with the equipment and rack



NO POWER LOSS HERE!

SEALED POWER *Joint Seal* PISTON RINGS

prevent power leakage at the joint!

IF you want to know how you can lick power loss at the ring joint, take a look at the Joint Seal construction. It alone—of all types of rings—"seals" the joint for the life of the ring. Power can't leak by. Top-notch ring performance is maintained.

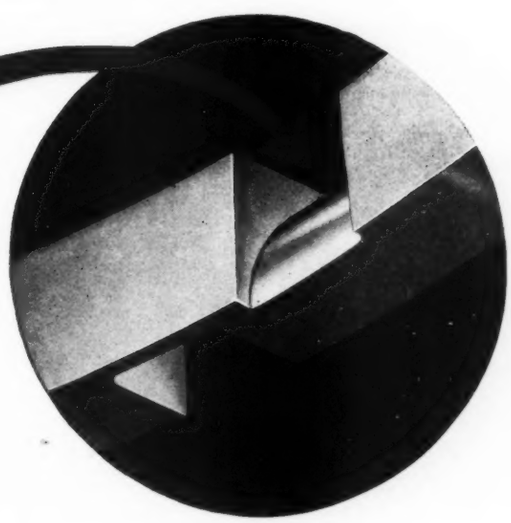
You see, in the Joint Seal construction, the face of the ring is sealed off at the joint to complete the cylinder seal. And the joint at the groove is also sealed off against the piston land. Result: gas entering the clearance space behind the ring is trapped and cannot escape at the joint.

If you are looking for a ring that gives maximum power *all the time,* insist on Sealed Power Joint Seal Piston Rings. They'll turn in a job for you that you'll never forget!

SEALED POWER CORPORATION

Dept. 339, Muskegon, Mich. • Dallas Warehouse—2717 Main St.

Canadian factory at Walkerville, Ont.



which greatly improves the appearance of the entire set-up. (Figure 20-A and 20-B).

Picture 1 shows the field gauger's equipment as mounted in a standard coupe, note that the equipment case is set out on the ground so that the placing of the equipment in the case can be shown.

Picture 2 shows the field gauger's equipment as mounted in a sedan or coach. Both set-ups are ideal for filling the tubes, heating the samples and making the centrifugal test. The equipment and the gauger are also to a great degree protected from the elements.

It takes the average gauger from 12 to 18 minutes to make an inspection with the above equipment. This time is checked as he gets out of the car, makes the inspection, grinds out the sample, writes up a skeleton ticket and gets back in the car, moving on to the next lease. Equipment so mounted always attracts the attention of inexperienced as well as the experienced oil man, gives the producer as well as the pipe line a fair, clean and as accurate a test as can be made in the field.

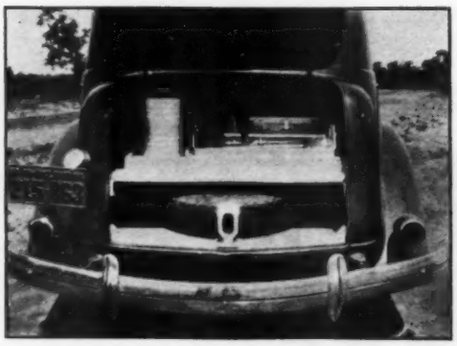


Figure 2

The chief gauger at regular intervals tests the gauge line, thermometer, hydrometer, test tubes, bath thermometer and strapping line with "master equipment" certified by the National Bureau of Standards. Any equipment that does not come within the specified tolerance is discarded and replaced with equipment that meets such specifications.

Looping of Interstate Natural Gas Company Monroe-Baton Rouge Line Completed

Filling in the final gaps in the looping of that portion of the Interstate Natural Gas Co. Monroe-Baton Rouge, La., trunk gas line west of the Mississippi River has just been completed. Elimination of these gaps, three in number and totaling a little over 24 miles, gives the company a complete double line from Monroe to the river, a distance of over 100 miles.

Twenty-inch pipe was laid on these three stretches. The remainder of the loop line consists of 22-inch and 20-inch pipe. The original main line is 22-inch pipe all the way from Monroe to Baton Rouge, a distance of 255 miles.

Gaps which have just been filled in include one extending northward from a point near Vidalia, La., on the Mississippi River; another between Winnsboro and Mangham; and the third extending southward from a point near Alto, at the northern end of the section. The longest of these sections is approximately 7 miles.

These three loops were laid under contract by Latex Construction Co. of Houston. With the work done at this time of the year no particular problems were encountered. Favorable pipe line laying conditions existed on each of the loops.

Pipe was received in double random length joints of approximately 40 feet, and was unloaded at 10 convenient hauling points. In the field, these joints were welded into 80-foot, or 120-foot sections, and these sections were joined with Dresser couplings. The 120-foot sections were laid through one creek bottom totaling approximately 3,000 feet. Except for a few 160-foot sections, mostly road crossings, the remainder of the pipe was laid in 80-foot sections.

Cleaned and primed at the mill, the pipe was recleaned and reprimed in the field, and then coated with enamel and loosely wrapped with felt. All this work was done by hand after the joints of pipe were welded into sections. For the recleaning, repriming and coating and wrapping, the sections were placed on rollers and turned by means of a power drive off a tractor.

Bonding couplings

After coating and wrapping the sections were coupled into the line. Each coupling was bonded with a copper strip brazed to the end of the respective sections of pipe and to the follower on the coupling. This was done so that cathodic protection could be applied to the line. Couplings then were coated, and the line lowered. Tractors with side booms were used for lowering the pipe.

The line transports gas from the Monroe and Richland fields of Northeast Louisiana to Baton Rouge where it supplies industrial and domestic consumption requirements. It also supplies gas for United Gas Public Service Co. 18-inch line from Baton Rouge to New Orleans. The latter furnishes fuel for numerous sugar refineries along the route and gas for other industrial and domestic consumption requirements at New Orleans.

Tractor with power-drive for turning sections of pipe

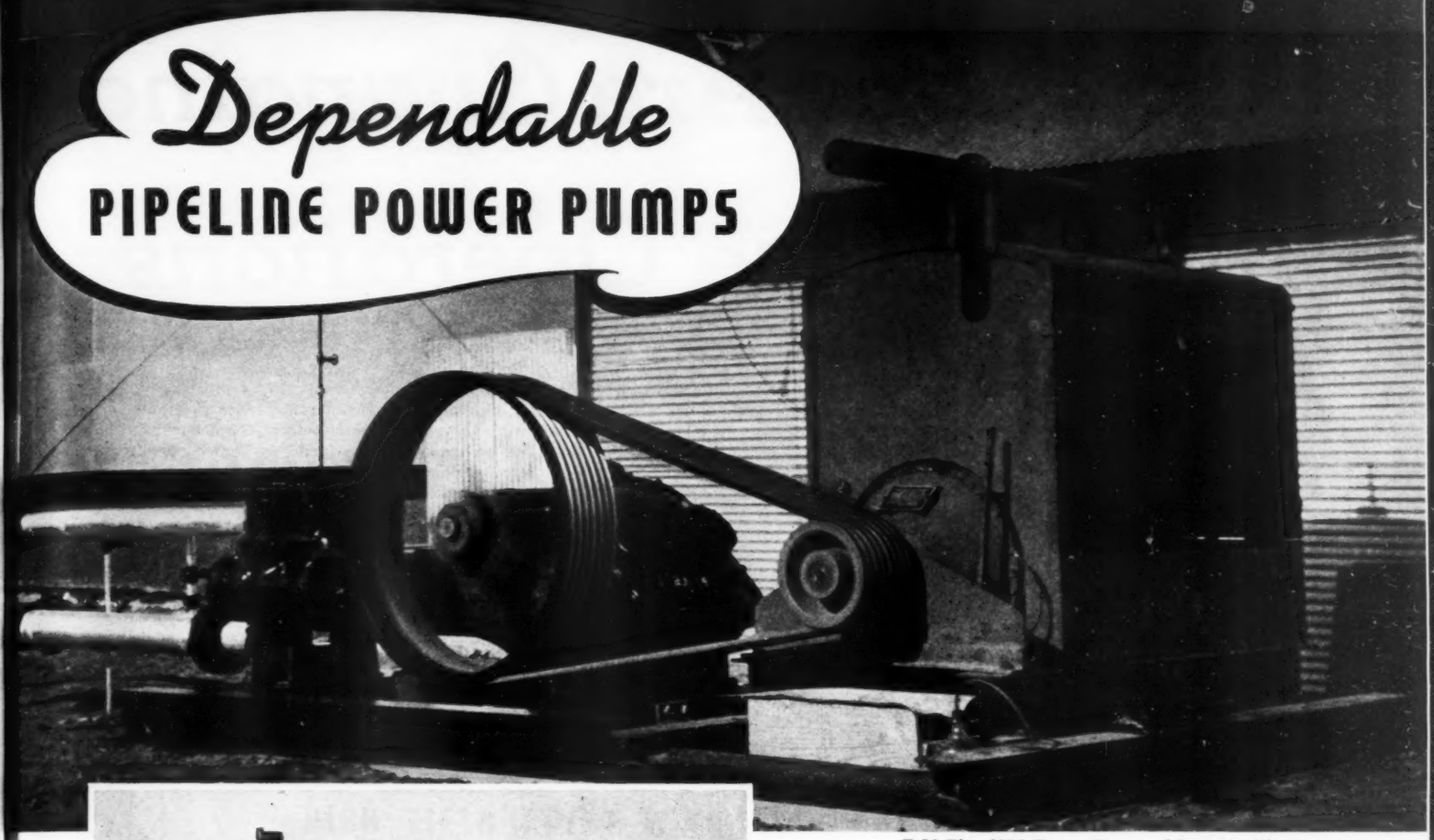
Obsolescence and Corrosion

The transportation branch of the oil industry is facing constantly expanding demand for additional capacity, and for operating economies in the form of new equipment requiring less replacement and maintenance to cope with increasing labor costs on the other side of the ledger. The toll of obsolescence and corrosion each year reaches staggering totals.

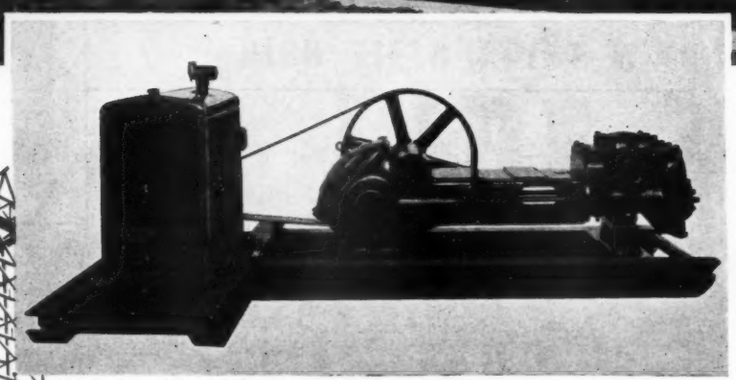
Operating experience has convinced the industry that it is frequently false economy to continue use of obsolete equipment, even though it may remain thoroughly serviceable, if newer materials render more satisfactory and less expensive performance. For this reason, expenditures by the pipe line companies remain relatively high in comparison with general conditions.

CONTINENTAL ★ FAIRBANKS-MORSE

Dependable
PIPELINE POWER PUMPS



F-M Fig. 6175 Power Pump with R-4-1 Climax "Blue Streak" engine



F-M Fig. 6173 Power Pump with H-4-B Climax "Blue Streak" Engine

DEPENDABILITY *is the word* for Fairbanks-Morse Pipeline Power Pumps.

Pumping assemblies equipped with Fairbanks-Morse or Climax Blue Streak multi-cylinder engines are available in 55 different combinations of liner and pump sizes to provide a wide range of capacities and pressures. Portable sub-bases make these units especially desirable for both temporary and permanent installations, while the engines are adaptable to any common oil field fuel.

Any Continental representative is equipped with full particulars concerning F-M Pipeline Power Pumps. Complete stocks with ample repair facilities are available at convenient Continental store points throughout the oil country.

Descriptive Bulletins on F-M Pipeline Power Pumps mailed promptly on request

THE CONTINENTAL SUPPLY COMPANY

General Offices: DALLAS, TEXAS
Export Offices: CONTINENTAL EMSCO CO., Inc.
30 Rockefeller Plaza New York City, N. Y.

Representatives:

PLOESTI MARACAIBO LONDON BUENOS AIRES

HOUSTON OCTOBER 11-16-1937
SEE OUR EXHIBIT
OIL WORLD EXPOSITION

CONTINENTAL

SERVING PETROLEUM AND GAS INDUSTRIES

Conditions Are Changing in Pipe Line Operations

A fundamental business precept states that no business can continue very long as a going concern if operations do not produce a margin of profit. Profit may be defined as the difference between income and expense. Depending on the order of change in expenses and income, the margin of profit is favorably or adversely affected.

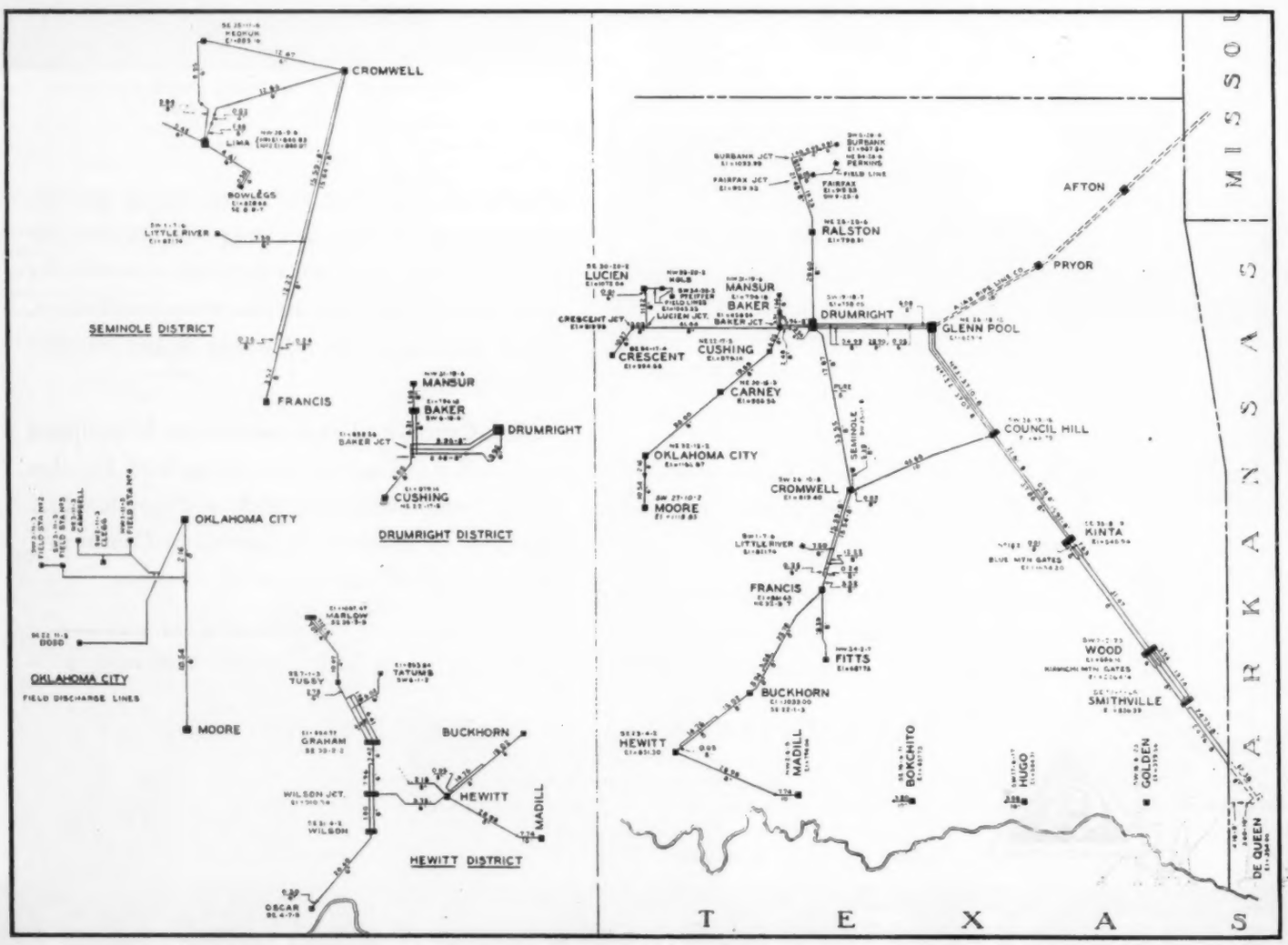
An increase in expense is usually reflected in higher consumer cost of the commodity produced. It is only natural a business should try to maintain a profit balance suited to the needs and requirements of the business. If there is no increase in income and expenses continue to gain, then any prior profit margin can be maintained only by offsetting the higher expense through operating economies. This problem is not an uncommon one to carriers by pipe line and in most cases it is brought about by situations within the company combined with conditions beyond direct control.

During the past several years expenses have steadily increased through the relentless tax action of federal, state and local agencies. Many of these taxes affect labor and industry alike, but the percentage of increase is much greater with the business enterprise than with the individual. Raw materials, supplies, and equipment are all higher in price and many items are from 15 to 40 per cent above 1935 quotations. Salary and labor rates have been increased to a point where they are now equal to or beyond the 1929 level. Working hours have been reduced and the eight-hour day is well established as a normal standard. The 36-hour week is vastly different from the 48- to 60-hour week of prior years. Older employes have been retained; many new names appear on company payrolls, and holiday and vacation allowances are granted where they did not exist before. The net result of these changes can be found in higher operating cost statements, but there is no corresponding increase in revenue.

That conditions have improved is exactly as it should be and practically all industries agree that a good living standard, high wages, and fair working hours are the right of all employes. If these things are to be realized, there can be no escape from the fact that they must be earned. Labor, therefore, must recognize all factors and do its part in maintaining the balance of profit so essential to the continuation of any business.

Specifically the Oklahoma Pipe Line Co. has

(Continued on Page 146)



Oklahoma Pipe Line Co. system

is ROUGH

USE PIPE THAT IS TOUGH

REPUBLIC STEEL

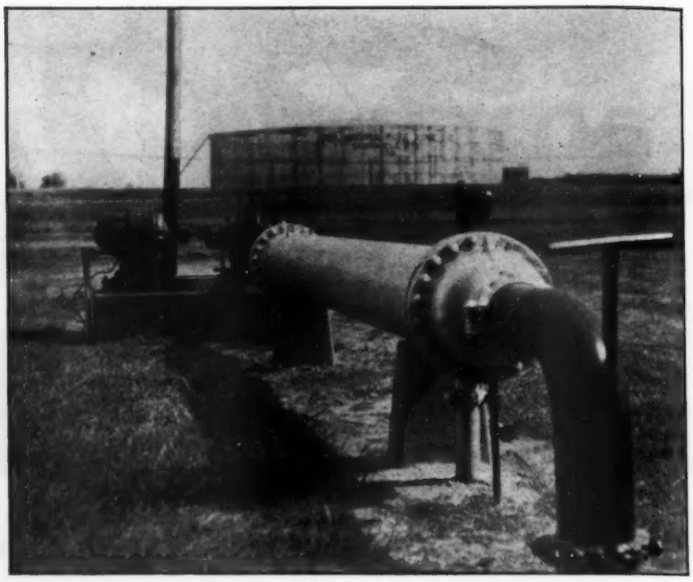
ELECTRIC WELD

HIGH YIELD POINT WITH HIGH DUCTILITY

LINE PIPE

Republic Steel Corporation

Beveling pipe at reconditioning yard



Heat exchanger and crude oil booster pump

been working on the problem of counter-balancing higher costs through a careful analysis of its operating conditions and requirements. As originally planned and subsequently extended, the system was designed to deliver oil to a southern terminal. A complete diversion of traffic to a northern terminal made it necessary to operate some equipment at an overload, while other equipment was either idle or running on a very light load. By force of circumstances oil was being moved in a roundabout way and relayed through several pumping stations. Obviously this was not a good condition and the first problem was one of bringing pipe line and pump station facilities into balance with the total requirements of the system.

It is mathematically correct to state that the shortest disance between two points is a straight line, yet it is surprising how many times the axiom has been overlooked or wilfully ignored in pipe line systems. Full recognition must be given to circumstances and special conditions where the rule does not apply, but certainly every effort should be made to avoid the circumstances and correct the conditions if possible.

The original system of trunk lines resembled an equilateral triangle with Glenn pool, Okla., station at the apex; Hewitt, Okla., station at the west end of the base and DeQueen, Ark., at the east end. The final point in the system for oil gathered in the Hewitt area was at Glenn pool station and 'n order to make the required delivery a small amount of oil was pumped from Hewitt east to DeQueen, thence northwest to Glenn pool; the remainder and larger portion was pumped in a direct northeast line. The single line distance involved in pumping by way of DeQueen was 346 miles and although they were not all operating, the oil passed through 10 stations. The direct line pumping distance from Hewitt to Cromwell, Okla., is 182 miles; five stations are passed through and each handles the oil. From this brief summary, it was apparent a substantial saving could be made by pumping all of the oil direct from Hewitt to Glenn pool.

Station capacity was adequate, but to assure uninterrupted deliveries a standby unit was planned for one of the intermediate relay stations. Line capacity was not suited to the increased load but could be brought up to the desired point by controlling parallel loops. Some machinery and all the pipe for this work was available from that part of the system which would not be needed when all of the oil was pumped in a direct line out of Hewitt.

Pipe Salvaged

Approximately 212 miles of 8-inch standard weight, lapweld screw-coupled pipe was salvaged from idle lines and a portion of this supply was set aside in storehouse stock. The new construction between Hewitt and Glenn pool required 18 miles and the balance was sold on the open market. Salvage operations were carried out in easy stages and wherever possible the work was done with company equipment and employes.

General procedure in reclaiming the old lines was to ditch down to the top surface of the pipe, split the collars with an acetylene torch and break out the joints in their original lengths. Material yards were established at convenient points where the pipe was straightened, cleaned, classified into four grades and the ends beveled for use in welded line construction.

Idle facilities are usually placed on a deferred maintenance schedule with the result that deterioration occurs at a rapid rate. Corrosion on underground pipe continues regardless of whether oil is pumped or not; watchmen must be provided at shutdown stations and in spite of this fact, machine parts are broken, lost and stolen. Functional depreciation is a constant factor and tax rates are the same on idle and working equipment. A large surplus of idle equipment can easily become an expensive burden and in many cases it has served as an economic stumbling block.

Cutter operating beveling machine in an Oklahoma pipe reconditioning yard

Due to the changes that were made in the system it was possible to shut down three pump stations entirely and discontinue pumping with one unit at another station. Five stations were abandoned and the pumping units and structures were salvaged and used where needed in the new rearrangement program. Surplus equipment and material was sold. In many cases pumping equipment had become so obsolete that it could not be sold as a complete unit and wherever this condition was encountered, parts were salvaged for replacements on similar equipment in use at other locations and the remainder broken up and sold for junk.

High Efficiency

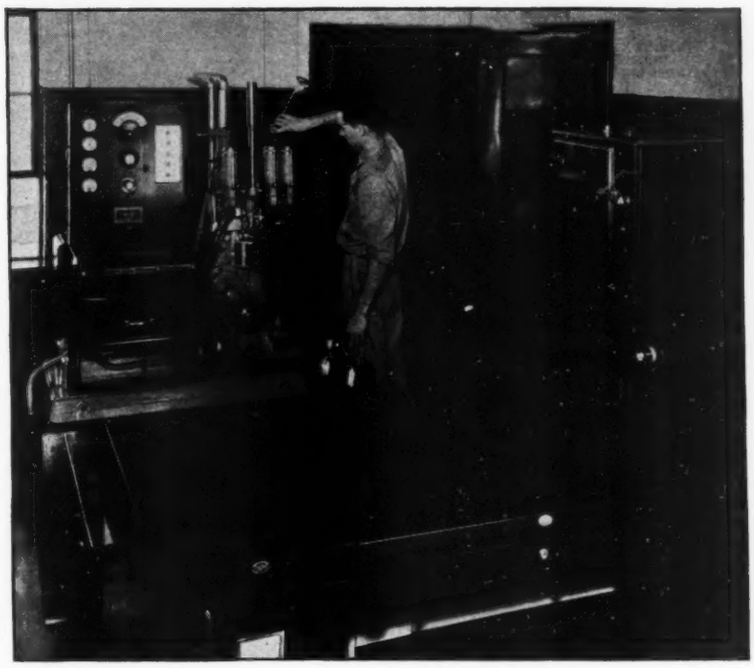
Additional savings have been made by bringing pumping machinery up to a high efficiency standard. This work must proceed slowly and requires a careful study of loads, heat balances and operating practices at individual stations. Three key stations were selected and closed cooling water systems have been installed to replace the older and more conventional type of open system. The effective life of lubricating oils has been extended by filtering and centrifuging. Engines have been equipped with air filters, exhaust pyrometers, and waste heating boilers. The crude oil used for fuel is treated to remove all abrasive materials, basic sediment and water. Many expensive and troublesome conditions have been eliminated by the correct installation of auxiliary equipment that becomes a related part of the pumping units. The first cost of these devices is returned in a reasonable time period through savings in materials, supplies, repairs and replacements.

Further operating savings will no doubt be made through the persistent effort of pipe line operators, engineers and equipment manufacturers. However, there must be some definite limit beyond which it will not be possible to lower operating costs through system rearrangements and betterments in machine efficiency.

1937 Pipe Line Construction

It is estimated that new pipe line construction for 1937 will total between 9,000 and 10,000 miles, including short arteries to connect new fields, loops to existing lines, but exclusive of gathering lines. Out of the total, approximately 45 per cent will be crude oil pipe lines and the balance will be about equally divided between natural gas and gasoline lines, provided contemplated projects are completed.

Laboratory Inspection Controls Operation of Pipe Lines



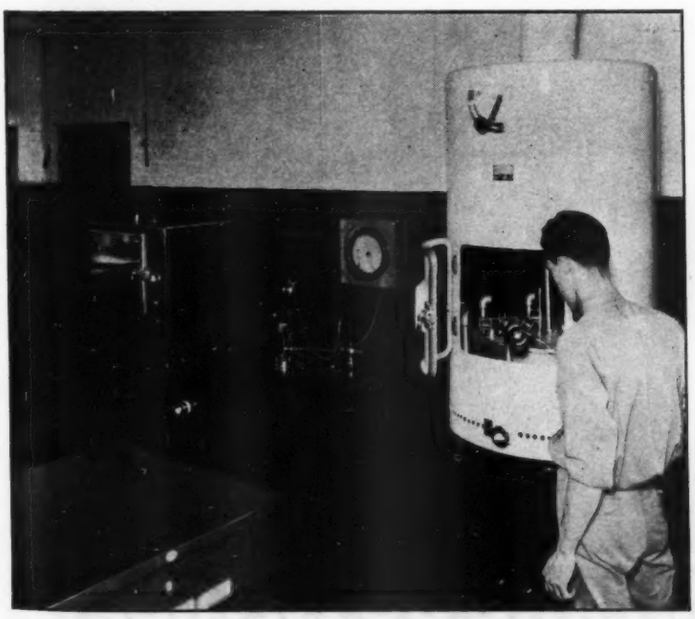
CFR antiknock machine

When the first gasoline pipe line systems were projected two questions were customarily asked by the laymen, "How could excessive line losses be prevented?" and "How would the transportation of different grades of gasoline through the same line be accomplished?" Gasoline pipe line operators found that because of more advanced equipment line losses were actually less than those experienced by most crude oil pipe line systems. These operators also learned there was no particular affinity between two grades of gasoline each with a different specific gravity and with this knowledge began to accept for transportation more than one grade of gasoline. The acceptance of several products requires exact dispatching and constant laboratory control; otherwise, mixture of grades with a resultant loss of particular points in the specification will occur. This article describes the methods and the extreme limits one pipe line carrier observes in the movement of the several different grades of gasoline consigned over its line.

A central laboratory in the refining area for the inspection of tenders was considered, but as time would be lost between the sampling and the actual testing of a tender sample with occasioned loss of pumping time, it was agreed each refinery when proffering a tender would turn the necessary sections of its motor fuel laboratory over to the pipe line inspector. It was also agreed the refiner could furnish a witness for each inspection, who, if not satisfied with the inspector's methods of testing, could object through executive channels. It was further agreed the data produced by the pipe line central laboratory would be considered final. As tenders are approved, the chief dispatcher is notified, who schedules the joint gauging and sealing of tanks. If the tender does not meet that company's specifications, it is rejected and the inspector makes arrangements with the refinery management for the earliest possible treatment and reinspection. The motor fuel test data on approved tenders and the duplicate samples are sent to the chief chemist.

The inspection of a tender consumes approximately six hours, the following principal determinations being made:

Gravity	Gum
Vapor pressure	Acidity
Engler distillation	Induction period
Doctor	Antiknock value
Corrosion	TEL requirements



Electric ovens and Atlantic bath

Inspectors, in addition to being motor fuel testers of all around ability, must also possess considerable initiative and tact. It is seldom the motor fuel testing equipment of a refinery is located in as few as two rooms, and in some cases it being necessary to go almost entirely across a refinery site to reach isolated testing equipment, which demands occasional observation. No time can be saved in actual testing; that can only be accomplished in the arrangement and planning of each particular inspection. Quite often a pumping station is shut down awaiting the completion of blending and the proffering of a tender by a refinery and in some instances time is lost which can never be regained. The pipe line inspector continually works under a handicap. He is testing against a group of men on their home ground, using equipment with whose idiosyncrasies they, unlike him, are entirely familiar. In addition, particularly in antiknock testing, each refinery laboratory knows its own products' performance peculiarities more intimately than is generally realized, calling for extreme caution on the part of the inspector.

The pipe line inspector must be as fully aware of his responsibilities off, as well as on, the job. He must be firm in his stand on the interpretation of the spirit of test methods and show no sign of partiality. In each refinery, development work, usually confidential in nature, is being conducted. Inquisitiveness, one of the strongest of impulses, must be restrained and one of the cardinal rules is that an inspector shall not discuss with anyone the development work in which any laboratory may be engaged.

Accepted tenders are placed in the care of the dispatching division for transport to the various terminals, according to each company's allocation. That division is kept informed of those gasolines which are most homogeneous and makes constant use of that information. Line turbulence fortunately creates an effective preventive against contamination and as a result, the various batches of different type products can be transported the full length of the system with no visible change in specifications.

A laboratory is located at each terminal point and is completely equipped to perform the identical tests conducted at the point of origin of all products. One motor fuel tester is stationed at each laboratory, operating directly under the terminal supervisor. At those terminals where volume of testing demands it, a helper is furnished to perform all sampling and to assist in testing. These laboratory assistants are men who have sufficient education and manufacturing background to be regarded as embryo testers.

The various products are sampled immediate-

SALES
CONCESSIONAIRES
IN GREAT BRITAIN
THE MANNESMANN
TRADING Co: LTD.
BUSH HOUSE STRAND
W. C. 2
TELEPHONE TEMPLE BAR
2084
MANNESMANNRÖHREN-WERKE DÜSSELDORF

ly upon arrival at terminals and those tests are first performed which will determine if the original specifications are met. Those tests are as follows:

Gravity	Corrosion
Vapor pressure	Color
Distillation	Gum
Doctor	Induction period

If the preliminary test data are satisfactory, the necessary determinations for tetraethyl lead and dye requirements are performed and the blend is made. After the blend has been completed, it is again rechecked to verify the requirement data as well as to see that no contamination has taken place during the blending operation. Periodic checks are made of each finished blend to be certain no contamination or deterioration has occurred.

The cooler months place the additional responsibility on the laboratories of calculating the volume of natural gasoline necessary to meet the many changes made in specifications by those shippers following volatility programs depending on weather forecasts.

A retainer sample is obtained on each car loaded, and the laboratory compares each sample tag with the official terminal report of cars loaded, at the same time observing the color of each sample versus color standards. Samples of undyed cars are checked in a chromometer before the cars are released from the terminals. The car retainer samples are then placed in a dark room where they are retained for the period designated by the shipper, usually 60 days.

Time and circumstances are two factors prohibiting placing these laboratories on production, similar to the method followed in refinery laboratories. The number of each type of test performed daily, when compared with a refinery laboratory, are comparatively few, though in the aggregate the same number of various type tests are employed. It can therefore be readily seen the tester must be adept to keep many pots boiling successfully. It is also of paramount importance to lay out the laboratory floor plan to facilitate the work with the least amount of lost time. In order to do this, much attention must be given construction detail and quite often some equipment is custom-made. The utmost use is made of automatic control instruments which not only save observation and control time of the operator, but also make for more accurate results. The flush mounting of equipment in table tops when feasible has also proved of benefit, making for ease of performance of tests and reducing maintenance costs.

Duties of Tester

The duties of the terminal tester are not only to test the gasoline, but also to have the real quality picture of the terminal in mind at all times and to use constant vigilance to protect all shippers.

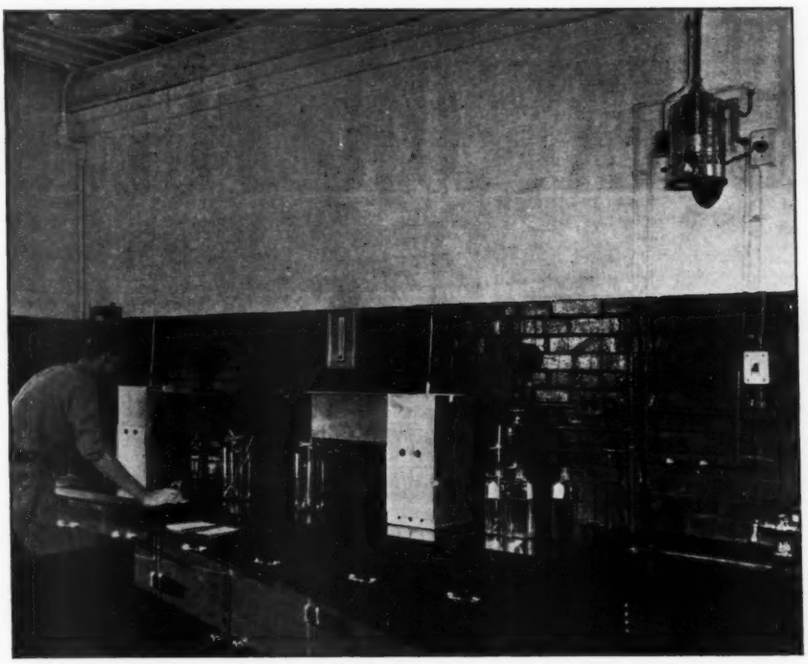
The central laboratory functions primarily as a control laboratory and is the headquarters of the chief chemist. Its functions are as follows:

1. Direct control of all operations affecting quality.
2. Compiles all laboratory reports for shipping companies.
3. Maintains the laboratory manual.
4. Investigates all suggested procedure changes and new methods.
5. Serves as a consulting and testing laboratory on problems involved in the use of lubricating and fuel oils, and diesel station cooling waters.

Duplicates of all tender samples are received and it retests any sample submitted having borderline characteristics. Tender samples are also tested when an inspector feels his results may be questionable on any given point.

The central laboratory also receives a duplicate of every base stock tank sample tested at each terminal, as well as the subsequent finished blend sample. The antiknock values of all finished blends are obtained and compared with the terminal laboratory results which have been submitted by teletype. In turn the terminals are advised at the earliest moment of the data obtained by the central laboratory.

Antiknock testing, perhaps the most complex, and containing more variables than any of the test methods employed, has been given particular emphasis. Since the majority of the pipe line terminals are located in cities remote from other testing laboratories, each terminal laboratory must stand on its own feet, except for the help that can be given it by the central laboratory. The usual control plan followed within large refining organizations, and also within certain groups of small refiners, is the submitting of common samples to all group members periodically, with all test data being accumulated at a common point, and the subsequent releasing of the combined report of all data to each participant.



Electric distillation equipment and electric water still

While that type of plan has some admirable features, it has not seemed worthy of adoption by this organization because each blend made is of the greatest importance and each sample receives as much attention as is probably given any sample in the usual standardization program conducted by refiners. The central laboratory can, by comparing terminal data with that obtained when the gasoline was originally accepted, determine within reasonable limits how efficiently each terminal laboratory is performing most of the various test methods. In other words, the pipe line must know that every blend is handled with meticulous care. Since each terminal makes a blend on an average of every other day, it can easily be seen samples from several different terminals (and consequently different engines) are on hand at the central laboratory at all times, and with data available as shown by all engines to form the picture, it is not difficult to point out that engine which is deviating. Thus all laboratories contribute to the control plan. While this system is not infallable, and apparently all are, it has been eminently successful to date.

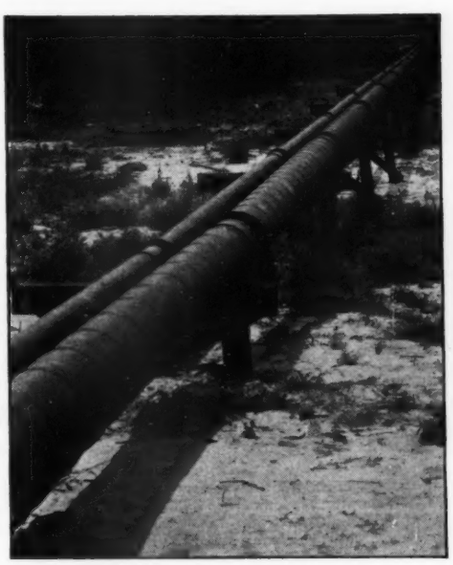
The most valuable instrument of administration outside of personal supervision is the laboratory manual. This manual is devoted to the official standard methods to be followed in sampling and testing gasoline, and to terminal laboratory procedure. This book is really the heart of the laboratory division.

Constant Improvement

The chief chemist frequently visits each unit of the laboratory division, remaining at each point sufficiently long to clear up any question in instructions, and to observe laboratory operation as well as those terminal operations which can affect quality.

Improvements are constantly being made in testing method technique falling within the spirit of each method. New methods are also constantly replacing the old. This type of pipe line, having many masters to serve, must be constantly on the alert in order to keep abreast of the best prevailing thought on laboratory operation among its shippers.

A gasoline carrier may operate economically, but unless the gasoline delivered by it to shippers at destination is of the same specification as that received by the pipe line company at the refinery, the accomplishments of the latter, no matter how exacting, will be nullified with the result the pipe line company will eventually lose its traffic. For this reason the carrier in question leaves nothing undone in either of its transportation or laboratory control of its movements.



A 24-inch gas gathering line and 10-inch return residue line built to serve Phillips Petroleum Co.'s 50,000,000 cubic foot absorption gasoline plant at Lodi, on the Texas side of the Rodessa field

Two fine instruments united

NEW TAYLOR FULSCOPE

Cut-away view of the front of the new Taylor Fulscope Micromax Controller, showing section of the familiar Micromax chart and the in-built Taylor Fulscope Control Unit with the features that have always distinguished the Fulscope.

to make one that is still finer—

MICROMAX CONTROLLER

Result of co-ordination of Taylor Fulscope Air-Operated Controller with L & N Micromax

When first announced, this combination of the most efficient instruments known to modern industry was hailed by process engineers as "a natural." Get the full details of the advantages of this new air-operated potentiometer controller.

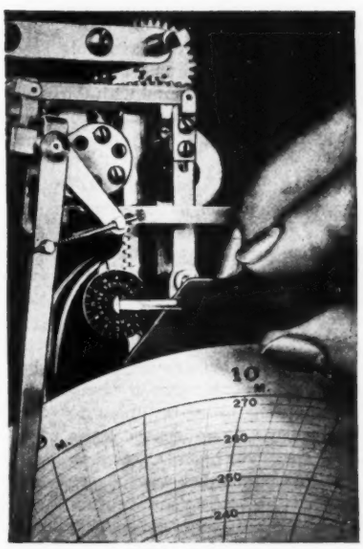
THE Taylor Fulscope Air-Operated Controller contains distinctive features that have made it the outstanding control instrument of its type. The Micromax Potentiometer, because of its fine record of achievement, enjoys an acceptance as leader in its field.

Taylor engineers took these two instruments, combined them, and now offer one of the most important contributions in years to more efficient process control.

Wherever the new Taylor Fulscope Micromax Controller is introduced, it claims the enthusiastic approval of process engineers. A prominent engineering company ordered a number of them for a new refinery for one of the large oil companies—immediately it was released to industry. Engineers in other industries hail it as a great step forward in precision instrument design and construction.

All the features of the well-known Micromax have been retained. Also all those of the Taylor Fulscope—the original Taylor Universal Sensitivity Adjuster with graduated dial for easy adjustment to the one best throttling range for any operating condition; the mechanism which allows change from direct- to reverse-acting with addition of parts; and the relay air-valve with self-cleaning orifice. The Fulscope mechanism has been transplanted into the new instrument so that many parts of the tube-system type and this new potentiometer type of Fulscope Controller are identical. Interchangeability of parts is one of the features of the Fulscope Micromax Controller.

Let us give you the full details on the advantages of this new instrument. See a Taylor Representative or write direct to Taylor Instrument Companies, Rochester, N. Y., for the new Catalog 101R.



The simple screwdriver adjustment in the Taylor Fulscope Controller is retained in the Taylor Fulscope Micromax Controller. Many parts of this potentiometer type are identical with those in the tube-system type of Fulscope which you may now be using.

Taylor

Indicating • Recording • Controlling

TEMPERATURE, PRESSURE, FLOW and LEVEL INSTRUMENTS

Modern Methods of Controlling Unaccounted-for Natural Gas

By CHAS. F. TURNER
East Ohio Gas Co.

Unaccounted-for gas volumes result essentially from two sources: leakage and error in measurement. We propose to show in this paper how both of these sources may be reduced by the coordination of thought and correct engineering principles with the use of instruments developed within recent years.

First, let us consider the subject of leakage. There are many possible sources of leakage in any gas transmission or distribution system but the one usually most difficult to locate is on underground pipe and fittings. There is now available an array of tools the intelligent use of which makes much simpler the task of the men charged with the maintenance of a gas system and the location of these underground leaks.

Newer Methods

The gas industry seems to be awakening to the possibilities of this age of science and robots. At a convention not long ago the statement was made by a well-known gas engineer that when a man now goes out to search for a leak he might easily be mistaken for a doctor because he arrives on the job with a kit full of tools which look very much like those a doctor would use, even to the stethoscope. Until rather recent years a transmission and distribution engineer continued to meet his every-day problems in much the same manner as his predecessors. The old-time gas man had little patience with new-fangled methods or gadgets and believed that the best way of locating a leak was to go out and dig until he found it. This procedure was costly and time consuming.

In proportion to the constantly increasing number of technically trained men which seem now to be filtering through the gas industry and to the ever-increasing cost of labor and materials the old order of doing things is being supplanted by modern methods based on sound engineering principles, many of which involve the use of skillfully designed instruments. All of these things combined result in great savings in operating costs and improved service.

It was not so long ago that the generally practiced method of locating leaks in a gas pipe system was to put down a bar hole, if the pipe was underground, and hold a lighted match over the hole. Or, if the pipe was exposed as in a building, a lighted candle was relied upon to locate the source of the leak. This practice is still followed by some companies no doubt, but the majority have discontinued this practice in favor of safer and more precise methods. Today there are available instruments which are ingenious in their conception, of rugged and practical construction and relatively inexpensive. With their use most of the guesswork of old is eliminated, useless digging is avoided and the same number of men can cover a larger territory.

The patrolling of a large gas system transporting gas over long distances and then distributing it through miles of city streets is a costly procedure but one which is necessary. Any method or device which tends to decrease the time expended and the volumes of unmeasured gas is greatly to be desired and calls for a comprehensive and well worked-out plan for the most intelligent use of man power and equipment. Much interest has been shown by gas companies generally in the past few years in the use of the combustible gas indicator, of which there are several thoroughly reliable and practical makes now available. These instruments were first developed for the detection of dangerous concentrations of combustible vapors in and about refineries and they eventually found their way into the gas industries where they are now an indispensible tool. The gas man looks back to the day when he had to depend upon his nose or a lighted match and wonders how he ever got along without the indicator. Capable of registering even small amounts of gas which may have little if any odor, they take away that uncertainty as to the presence of combustible or its concentration. Practice and the development of technique in their use make possible the exact location of a leak with surprising regularity. Many large companies have now in operation definite procedures in which regularly detailed crews patrol at stated intervals all parts of their systems, giving weighted attention to those parts of the system carrying the higher pressures or where vibrations due to heavy traffic are likely to loosen joints or open up holes in badly corroded pipes.

Leak Indicator

There has recently been developed an instrument which exemplifies the extent to which engineering thought has entered the gas industry. This instrument is a very useful adjunct to the indicator and is known as the leak locater. Its inventor reversed the usual manner of thinking and instead of searching for leaks from outside the pipe he developed means of looking for them inside. It is rather interesting that the so-called gas bag which has been used by the gas distribution man for years as a means of isolating a section of main was always used singly or in pairs each independent of

Laying 12-inch gas gathering line through wooded section in Rodessa, Texas, field

the other. It remained for an engineer to couple two bags together separated a fixed distance of several feet by means of a flexible steel tape. This steel tape, marked in feet, is of considerable length and stiff enough to enable the operator to push the deflated bags through a single tap hole in the main and as far away from the tap hole as 300 feet. By pushing 300 feet first in one direction and then in the opposite direction a total of 600 feet of main may be prospected from one bell hole. Two small hoses, one an inflating hose and the other a pressure recording hose, accompany the bags into the hole. Both bags are inflated simultaneously and when fully inflated the section of main between them becomes isolated.

The gas pressure is noted on a sensitive gauge before the bags are inflated and again after inflation. It follows that any drop in pressure after the section of main has been isolated indicates the escape of gas, the rate of pressure drop being an index to the size of the leak. By moving the bag assembly a few feet, inflating the bags and noting the pressures, then deflating and moving them forward a few feet and repeating the process the entire 600 feet of main may be tested for leakage. Ofttimes more than one leak is found within a given test section. By referring to the figures on the tape the exact location of each leak may be marked on the surface above.

Stethoscope

Another very helpful tool is the stethoscope. Everyone is familiar with the stethoscope used by the doctor in listening to sounds within the human anatomy. The essential part of the instrument, a delicate diaphragm, is used in several ways. In one adaptation it is fitted with ear tubes and a union connection so that it may be attached to the end of a pipe. In using this device for detecting leaks in a service pipe the meter is taken down and the union is screwed to the head of the service. Gas pressure is turned against the diaphragm and when the ear pieces are inserted in the ears a number of curious sounds are heard. Practice in its use enables the operator to differentiate between those noises caused by extraneous occurrences like the opening of a water faucet from those caused by gas issuing through a hole somewhere in the service or adjacent main. Several companies have successfully used the instrument in this manner and now require stethoscope tests whenever a meter is set or disconnected.

In another adaptation, the diaphragm is attached to one end of a slender but stiff rod. By pushing the rod down over and in contact with a pipe line the man trained in its use is able to detect sounds which indicate leaks.

One of the most interesting developments which has come on the market in recent years is the Metalloscope, or the M-Scope as it is called. Its purpose is to locate any metallic substance which may be buried below the earth's surface or concealed in walls or floors of buildings like steel reinforcement rods in concrete floors, gas lines, oil lines, water lines, cable conduits, etc., which are buried in the ground. All sort of devices have been exploited for this purpose in years past and most of them have been as satisfactory as the crotched peach sprout divining rod with which we are all familiar. The M-Scope is interesting because it applies certain principles of radio and because it seems to be capable of a high degree of accuracy. It makes it possible for the user not only to locate exactly a buried main but it enables him to follow this main through all of its twists and turns, to locate fittings on it, to locate very accurately its depth and to tell whether it goes over or under other structures. With a piece of chalk he can reconstruct on the surface above a picture of the entire metallic network below the surface of the ground.

The complete instrument is made up of two units, one of which is the transmitter and the other the receiver. Each unit contains a loop antenna which is highly unidirectional in its ability to send and receive radio waves. When the transmitter passes over a metallic object, as it is carried along close to the surface being prospected, an indicator needle on the receiver registers the fact, provided the receiver is in proper alignment with the transmitter. The signal is also received in a set of head phones and increases from a slight murmur to a maximum loud roar as the transmitter approaches and then recedes from the metallic object. The sensitivity is so great that it is possible to locate reinforcing bars in a concrete floor when they are as close to one another as 3 inches. Being simply a sending and receiving station it is subject to interference or static which somewhat restricts its usefulness. However, the trained user is able to maintain a high degree of accuracy even under adverse conditions. Although this instrument is not used directly in locating leakage, it is highly useful when the exact location of the leaking main is not known and attempts are made to locate it.

Correct measurement, which was mentioned as the other source of unaccounted-for gas, has become rather complex in many of its aspects due to the increasing use of automatic regulating devices on industrial appliances and because of the constantly increasing application of gas to new uses. The conditions under which measurement is to be made must be thoroughly understood and a type of meter selected which will produce the highest degree of accuracy under those conditions if accurate measurement is to obtain. The measurement of domestic and commercial loads is comparatively simple but many of the industrial loads are highly intermittent in nature, characterized by cycles of operation in which the flow of gas passing through the meter suddenly drops from a normal or maximum rate of flow to zero and then back to normal again all in a matter of seconds or perhaps minutes. These sudden interruptions of flow are common and are due to the action of reversing valves or temperature regulating controls found on modern gas-heating furnaces and ovens.

Orifice Meter

Where natural gas is the fuel the pressures are likely to run into pounds and the volumes are often large. Under such conditions the orifice meter is commonly used because for a comparatively small investment it can be constructed to stand any pressure and to pass any volume.

Provided proper consideration is given to those factors which are now well understood as the result of years of investigation carried on jointly by the American Gas Association, the National Bureau of Standards, the U. S. Bureau of Mines, the American Society of Mechanical Engineers and others, the orifice meter can be made a very accurate means of measurement. The results of the joint investigation have been reduced to a code, available to anyone upon request, which must be followed scrupulously in every detail. The metering station must be properly constructed and the most modern of equipment in pressure recording and chart evaluating devices must be used.

The old system of averaging pressures and differentials was to read the charts and set down the values for hourly or smaller intervals and average these values arithmetically. This method is entirely too slow where a number of charts are being handled daily. It was superseded by the planimeter method which speeded up the work considerably but which introduced errors into the calculations due to mathematical unsoundness of the principle involved and the tendency to exceed known operating limits.

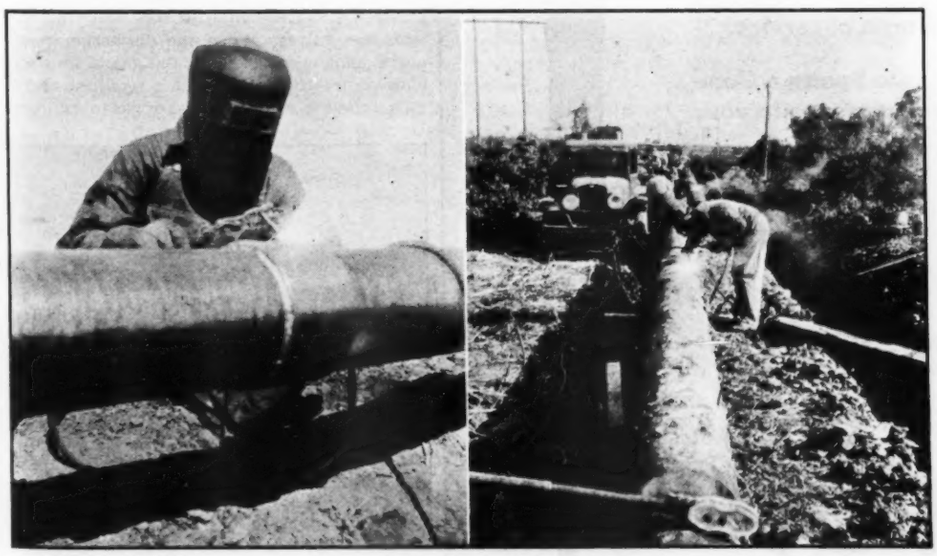
The most recent development for computing charts is the use of a machine called the integrator. This device in theory and in practice synchronizes the pressure and differential records over the entire chart circuit an infinite number of times (exactly the same way in which the records were established on the charts by the pens) and projects accumulative extensions with accuracy.

An important step in the computation of charts from orifice meters operating on intermittent load is the estimation of the exact time intervals during which the flow is at a minimum and at a maximum. In many industrial operations the percentage of the minimum flow time and maximum flow time remains fairly constant. Therefore, if a few observations are made with a stop watch, this percentage distribution of minimum and maximum can be determined and the values so obtained used in computing the deliveries.

Conclusion

In this paper an attempt has been made to outline the impetus which modern tools and practices can give to the reduction of unaccounted-for gas. Emphasis is given to the importance of making regular leakage surveys on an entire gas system which, until the advent of devices like the combustible gas indicator, took years to accomplish but now can be completed in a matter of months.

Secondly, the application of gas to industrial purposes involving automatic control equipment has complicated the problems in connection with accurate volume measurement. Conscientious attention to details in connection with the construction, inspection and maintenance of metering stations and in the use of correct principles in the valuation of charts is capable of producing a very high degree of accuracy even under the most adverse of conditions.



Circumferential and roll welding

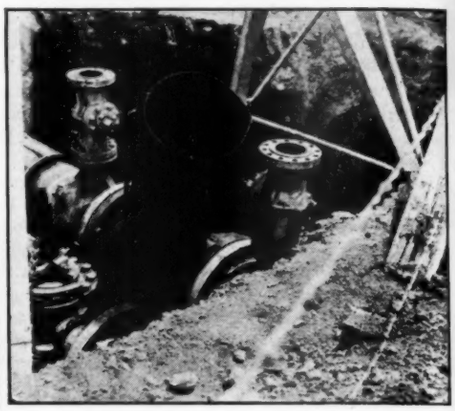
Efficiency of Gas Lines Is Maintained by Purging

Operating efficiency of high-pressure gas transmission lines is a subject which has received considerable study from officials and employes of Pacific Gas & Electric Co. As a result, the company has adopted a program for yearly inside cleaning of the lines over that part where deposition on the walls takes place.

Kettleman Hills and other gas introduced into Pacific Gas & Electric Co. lines is essentially clean, but it contains some hydrogen sulfide and other impurities in quantities too small to justify treatment. However, when about 100,000,000 feet of this gas passes through a line each day for several months, noticeable wall deposition takes place. Fortunately this only accurs in the first 30 to 40 miles of line. Thereafter the line remains clean.

In order to keep track of the condition of the lines during uninterrupted operation, curves are kept which compare the actual recorded line drop in each segment with the calculated theoretical line drop. In the course of a year there is a gradual decrease in efficiency of flow through the segments affected by hydrogen sulfide. It has been determined that flow is not restricted by reduction of internal diameter, since no appreciable reduction occurs, but the walls are roughened so that friction is greatly increased. During winter when peak loads are required, cleaning is not possible, so the institution of spring cleaning is accepted.

Unusual cleaning practice is as follows: Due to the type of construction, go-devils cannot be used.



Purge joint

Steel shavings are employed instead. At regular intervals of 5 miles connections have been installed on the lines to permit insertion of what is known as a "purge joint." This is a 12-foot piece of pipe of the same diameter as the line and has a short piece of pipe welded into it at right angles. In preparation for cleaning, a 5-mile section of line between main-line valves is blown down, and the purge joint is installed in the middle of this section, replacing a nipple at the same length. Steel shavings are introduced into the line through bleed-off valves at the main-line valves. First, the main-line valve 2½ miles upstream from the purge point is opened and shavings are blown down through the line to be discharged at the purge joint, together with the iron sulfide and other substances which they have dislodged from the walls. The 2½-mile section downstream from the purge joint is cleaned in the same way, shavings being blown upstream from the main-line valve to be discharged at the pump joint.

About 2 or 3 bushels of shavings obtained from the machine shops are used for each 2½-mile section. Full line pressure is applied, usually 400 to 500 pounds, blowing the shavings with great velocity. During cleaning, the line superintendent remains at the purge joint and is in constant telephone communication with men stationed at the main-line valves. When the discharge from the purge joint becomes clean, the gas is shut off. A blow of one to two minutes is required, and care is exercised to reduce the loss of gas to a minimum.

After 1-minute purge, blew dark 10 seconds

Q. What is the cost of a string of cable tools?

A. The value of the service rendered by the tools.

THE value of a set of cable tools is not determined by the initial cost. It's what you get for your money that counts.

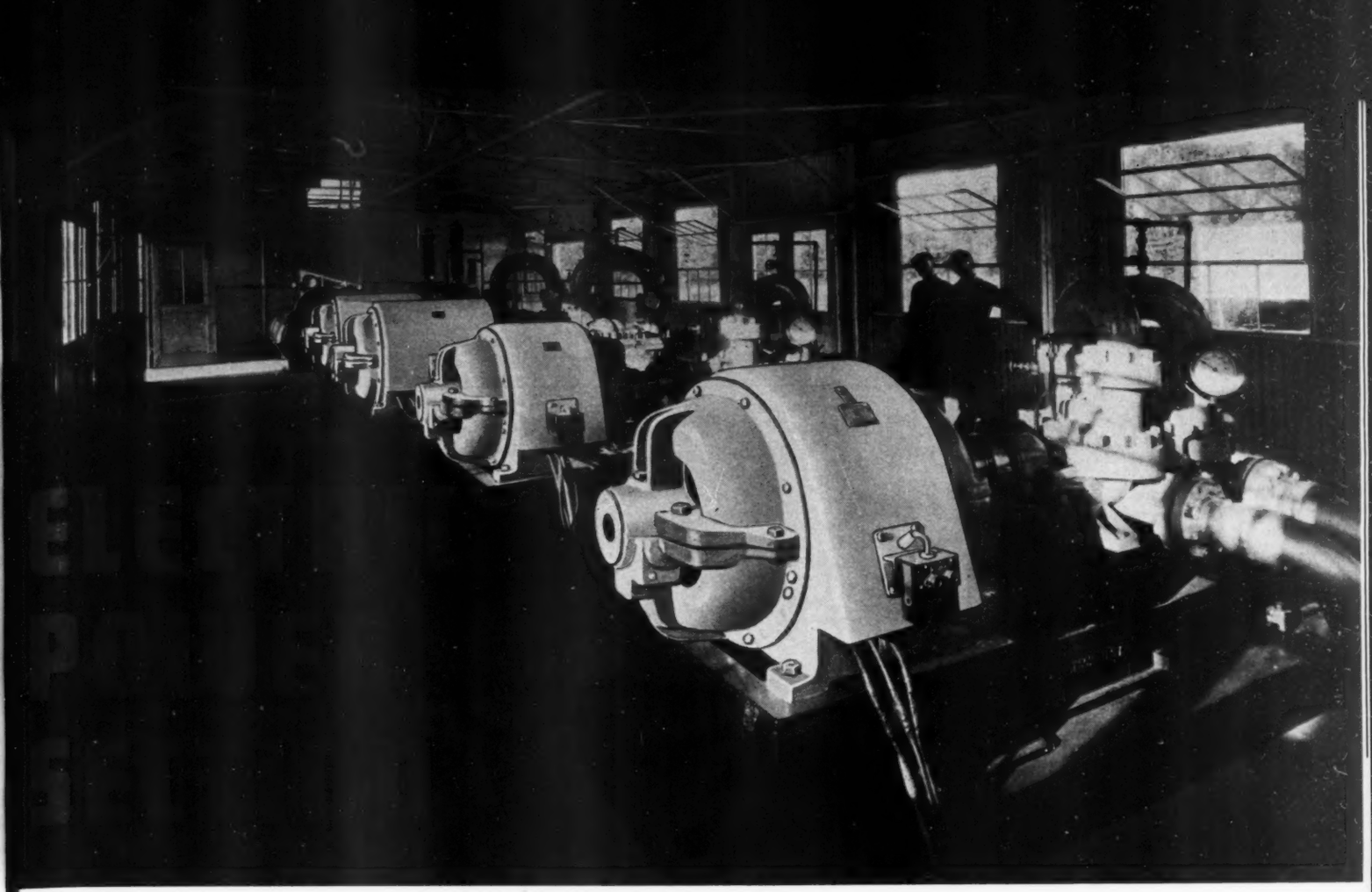
Measured by this yardstick, Spang Cable Tools are the most economical tools you can use. Every cent of your investment is doubly returned in strength, efficiency, and length of service.

Refer your cable-tool problems to Spang & Company, and put our extensive experience to your own use.

SPANG & COMPANY
BUTLER, PENNSYLVANIA

PROSSER-TYPE ROPE SOCKET
Fig. 505

Specify Spang
"HIGHER-STANDARD" CABLE TOOLS



Purchased Power Has Won Pipe Line Recognition

By W. H. STUEVE
Oklahoma Gas & Electric Co.

Electric power generated at central stations is playing an important part in the transportation of crude oil and refined products. This form of energy lends itself admirably to the many needs for power along the pipe line and while the chief outlet is for motors driving either reciprocating or centrifugal pumps there are many other uses to which electricity is put around pump stations. Telegraph and telephone systems involving the regulation of handling of the products in the line use electricity and remote control and signal systems also depend upon electricity for energy. While the volume of current used by these minor systems is not large the need for dependable power is great.

The westward and southwestward trend of newly discovered oil fields in 1895 to 1900 required interconnection of pipe line systems until today oil produced in West Texas is pumped through gateways at Chicago and St. Louis to eastern Atlantic tidewater. Coal was used for fuel to generate steam and required that pump stations be located adjacent to railroads, however, the condensing steam-plunger pumps continued in vogue and were used almost universally for handling crude oil until about 1910, with the advent of the diesel engine. The diesel engine had advantages in that the crude oil could be used for fuel, and further the diesel engine was of higher thermal efficiency in the ratio of about 4 to 1 as compared to condensing steam pumps, permitting more crude for delivery at terminus, thereby making savings in first cost, maintenance, operating labor, and, further, water supply was not so important. The diesel engine used was operated at 150 to 200 r.p.m. and 5 to 1 speed reducing gears were used to permit the plunger pumps to operate from 40 to 50 r.p.m. Speed variations were possible for changing volumes in about the same ratio as that obtainable from steam pumps.

One exception to the use of diesel engines, however, is noted in the California fields, where oil of low gravity, from 12 to 18° Be. and viscosity of the order of 300 to 400 Saybolt second at 70° F. temperature average was required to be pumped. In this case steam pumps continue in use to this day, using the steam for heating the oil before being pumped, to reduce its viscosity, and consequently reducing the initial working pressures.

Centrifugal Pumps

In 1926 the first installation of centrifugal pumps for pumping crude oil was made in South Texas, and a few months later in Oklahoma handling volumes of 45,000 bbls. per day with 700 pounds initial working pressures.

Two installations were made at a midway point to increase the capacity of an existing 10-inch line 60 miles long of 30,000 bbls. per day capacity, rather than installing parallel "loops" or pipes. The pumps were electric induction motor-driven and operated at 1,760 r.p.m. and were about 60 per cent mechanically efficient or 55 per cent overall for motor and pump.

The period 1927 to 1931 saw an intensive activity in pipe line construction. The larger companies already were operating refineries in Gulf Coast cities and in Chicago and St. Louis, using the "sweet" crudes from Oklahoma, Kansas and South Texas. The West Texas "sour" oil containing H_2S was a problem to consume in diesel engines and, therefore, electric power was installed to operate the pump stations.

This pipe line was the first so-called main line installed in 1928 for transportation of crude oil, to use electric-driven pumps, and it consisted of 485 miles of 10-inch seamless steel pipe with welded joints, with fourteen 800-horsepower induction motor-driven centrifugal pumps inserted in the line about 34 miles apart. At 800 pounds per square inch initial working pressure, the line had a capacity of approximately 40,000 bbls. per day of 24 hours.

The accompanying table lists the new pipe line installations during the period 1927 to 1931 and gives the company name, origin, and destination. The distance in miles, product pumped, number

of stations, capacity and size of pipe lines, horsepower of prime movers and type of prime movers is also given.

Referring to this table it will be noted a total of 96,600 horsepower of prime movers were installed during the period of great activity and discovery of new fields from 1927 to 1931. Of this total horsepower of prime movers installed 48,500 horsepower or roughly 50 per cent were operated with electric power, both synchronous and induction type motors being installed.

From the table it will also be noted that of the total oil-engine installations, plunger pumps were used in all cases, while with the electric installations 91 per cent were centrifugal pumps.

The great number of centrifugal pump installations for new main lines was brought about by exchange of operating data and costs between the pipe line companies who originally used the centrifugal pump to increase capacities of existing pipe lines about 50 per cent over their former capacity, by inserting such pumps at booster stations at midway points in the main line.

This table treats only of new lines and pump stations installed, whereas during this period of expansion a great number of "looped lines" or parallel pipes were also installed between older existing pipe line stations requiring pump stations to be enlarged and an additional total of prime movers were installed totaling 138,500 horsepower, consisting of 16,500 horsepower of electric-centrifugal and 122,000 horsepower of oil-engine plunger pumps.

The reason for this preponderance of oil engines over electric motors installed was due to the fact that the old stations could not be easily or readily converted to partial electric drive or that power lines were not available.

This table further shows that the greater portion of the new installations were for transporting crude oil, but two new pipe lines were installed to transport gasoline. It is also noted that none of the new lines transported crude from the East Texas oil field.

At this point in the chronological history of oil and gasoline pipe line installations, or about July, 1931, the East Texas oil field, with its great potential production, caused an additional number of new pipe lines to be necessarily installed, and its geographical position being within 200 miles of the Gulf of Mexico economically demanded this East Texas crude oil be pumped to Gulf ports to the larger refineries located there.

Heavy-duty motors driving pumps at the General Petroleum Co.'s field pipe line station near Wilmington, Calif.

As a consequence the following new lines were installed with equipment and capacities as shown in the following table:

Centrifugal pumps were used on all the installations of new pump stations after July, 1931. This is shown in the table to indicate the trend away from the use of plunger pumps. Another significance is noted in the case of the Atlantic line, the first in the table, that centrifugal pumps were used in two stations in spite of the fact electric power lines were not available for power service delivery, so electric power is actually being generated in these two pump stations with diesel oil engines to operate the induction motor-driven centrifugal pumps.

In the case of the Texas-Empire line, the electric power taken from the high lines was not available, so mechanical power was generated with diesel oil engines at 350 r.p.m. and transmitted to the 1,800-r.p.m. centrifugal pumps through speed-increasing gears.

This practice of developing mechanical power with oil engines and using 1,800-r.p.m. and 3,600-r.p.m. centrifugal pumps has become the recognized practice with pipe line engineers in station design within the past several years where purchased electric power is not available or if purchased power rates are not equitable.

Referring to Table 1 it is noted that two pipe lines were constructed for gasoline transportation, one from the Oklahoma refineries to the Great Lakes-Chicago market center, and the other from Philadelphia-tidewater refineries to Pittsburgh and Toledo market centers.

The reason for making these installations of gasoline pipe lines is obvious, when consideration is given to the economic aspect. Refineries ordinarily recover about one-half barrel of gasoline from a barrel of crude oil, and with fuel oil residue having a very much lower market value than gasoline, the gasoline marketers save the transportation costs on the extra barrel not required to be pumped.

After the completion of the two gasoline pipe lines mentioned another 8-inch line was projected by the Phillips Petroleum Co. with origin in the Texas Panhandle and terminals at Kansas City and St. Louis, Mo. This line has a rated capacity of 25,000 bbls. per day. The distance is 690 miles and fifteen 500-horsepower centrifugal pumps have been installed.

Each station was equipped with two 250-hp. butane gas engines driving 1,800-r.p.m. centrifugal pumps through speed-increasing gears. Butane is a by-product of gasoline plants and these engines were selected and installed because the greater portion of the line passed through sparsely set-

TABLE 2—NEW PIPE LINES INSTALLED IN 1931-1932 FROM EAST TEXAS OIL FIELD TO GULF

Company—	Size	Capacity bbls./day	Length (miles)	Stations number	Prime movers per sta. H.P.	Type	Total H.P.
Atlantic	10-inch	40,000	182	2	800	Elec.-Cent.	1,600
				2	900	Power Diesel Generated-Cent.	1,800
			201	3	600	Elect.-Cent.	1,800
Shell	10-inch	45,000	125	4	1,000	Elect.-Cent.	4,000
Sinclair	12-inch	80,000	190	5	700	Elect.Cent.	3,500
Sun	10-inch	45,000	196	4	1,200	Engine-Geared Centrifugals	4,800
Texas-Empire	12-inch	60,000					17,500

tled country and electric power lines were not available.

At about this same period, January, 1932, the first gasoline line referred to in Table 1, the Great Lakes Pipe Line Co., found its line so crowded it became necessary to provide for an increase of 50 per cent, or from 24,000 bbls. per day in the 8-inch portion of the main line, to 35,000 bbls. per day. In casting about for methods to gain this increase a decision was reached to install electric induction motor-driven centrifugal pumps at midway locations between old pump stations. These pumps, known as "Rannett," are eight-stage, four impellers back to back, and driven by a 700-horsepower 3,600-r.p.m. induction motor. To gain increased electrical efficiency the incoming stream of gasoline of about 60° F. temperature is drawn through a housing around the stator of the motor, thereby gaining perhaps three or four points in efficiency up to 96 per cent as against the average induction motor efficiency of 92 to 93 per cent.

Thus the centrifugal pump for pipe line purposes has crowded out the cumbersome and more expensive plunger pump for the oil and gasoline line service.

Some few attempts were made during 1930 and 1931, after the centrifugal pump became generally recognized equipment and purchased power was available at equitable rates, to make the electric induction and synchronous motor-driven centrifugal pump station operate automatically from remote control.

Automatic Operation

The outstanding station so equipped was the Texas-Empire Pipe Line Station, at Sand Springs, Okla., with its control panel located in the offices at Tulsa, 12 miles away. The motors controlled by this remote method are two 800-horsepower 3,600-r.p.m. synchronous type capable of delivering 75,000 bbls. per day at 800 pounds pressure, when both pumps were connected in series. The remote control operation can perform about 50 different functions in the station, as needed—the motor can be stopped or started as needed, suction-gauge pressure recorded and discharge pressure registered. In case of hot bearings, abnormal variations in pressures, or fire in the pump room, or any number of situations which may arise, the selective control will shut down the station and so indicate on the office control panel.

From an economic aspect this type of control has not gained much favor in the industry. The first cost of control panels, metallic circuit from station to dispatcher's office, and other incidental equipment costs about $25,000. A fair return on this investment of 12 per cent plus the necessary maintenance would more than offset the cost of operating labor ordinarily required otherwise.

Several installations have been made in "booster" pump stations of another type of remote control based on starting and stopping the motors when the suction pressures on the booster station reaches certain values.

The investment in this case is low as compared to the electric automatic installation of Texas-Empire station at Sand Springs, Okla., but the pipe line operator is still reluctant to accept either type of automatic control, due to possible fire hazards and other unforeseen difficulties which may be encountered.

Stations installed since 1933 either use gas- or oil-engines and apply the power through speed-increasing gears to 3,600-r.p.m. pumps, or purchased electric power is installed using the conventional two-pole, 60-cycle, 3,600-r.p.m. induction motor. Seamless steel welded-joint pipe is used almost exclusively and this permits initial operating pressures as high as 700 to 900 pounds per square inch.

The following table indicates the customary practice followed in pump station location, pipe sizes used for given design volumes, for crude oil of 35-degree gravity and 100 Universal Saybolt seconds viscosity.

TABLE 3—CUSTOMARY PIPE DIAMETERS AND DISTANCES USED BY DESIGNING ENGINEERS

Maximum delivery bbls/day	Size of pipe usually selected	Initial working pressure pounds/sq. in.	Approx. miles distance between pump stations
4,000	4-in.	1,000	30
12,000	6-in.	1,000	33
25,000	8-in.	900	33
40,000	10-in.	800	35
75,000	12-in.	700	30

Considering the reasons for pumping oil and gasoline through pipe lines it is found by reviewing the railroad freight tariffs for transporting crude that such tariffs call for a charge of approximately 30 cents per hundred pounds for a line haul of 600 to 700 miles.

A barrel of 35 degrees crude oil (42 gallons) weighs about 300 pounds, making the freight cost about 90 cents per barrel to deliver in Chicago oil which was originated in Oklahoma. Pipe line tariffs, as published, perform this same service for about 50 cents per barrel, but their costs for pumping are somewhat lower depending, of course, on the capacity or use factor of the pipe line throughout its life.

If a typical pipe line from Oklahoma to the Great Lakes is considered, the completed investment in pipe line and pump stations should be considered with maximum daily capacity of 75,000 bbls.

It is noted from the hypothetical operating costs shown that if the 660-mile pipe line operates at full capacity year after year, the actual pumping costs are 11.9 cents per barrel, or 1.8 cents per barrel per hundred miles. However, a more natural assumption would be that the line would operate nearer 75 per cent capacity, wherein the costs would approximate 12.7 cents per barrel, or 1.93 cents per hundred miles.

ANNUAL OPERATING CHARGES

	Daily operating capacities (barrels)		
	37,500	56,000	75,000
Fixed charges on total investment: Interest 6 per cent, depreciation 5 per cent, taxes 1½ per cent, insurance ½ per cent, maintenance 1 per cent; total, 14 per cent	$1,556,000	$1,556,000	$1,556,000
Labor: 10 men in engine stations at $150 per month	162,000	162,000	162,000
6 men in electric stations	84,200	84,200	84,200
Pump station labor for maintenance, 2- to 5-man crews	20,000	20,000	20,000
Oil engine fuel at $1 per barrel, .5 pound per brake horse power hour	65,700	132,000	198,000
Lubrication, 6 cents per 1,000 bbls.	8,200	12,300	16,400
Electric power at 1 cent per KW hour and minimum 50 cents per HP per month	86,500	350,000	950,000
Supplies, $100 per month per station		12,000	22,800
Clerical, executive and general office salaries	250,000	250,000	250,000
Total annual operating expenses	$2,232,600	$2,578,500	$3,259,400
Cost per barrel pumped through 660 miles (cents)	16 4	12 7	11 9

INVESTMENT IN TYPICAL PIPE LINE FROM OKLAHOMA TO CHICAGO

660 miles of single 12-in. pipe line at $12,000 per mile	$ 7,920,000
10 1,800-hp. oil engines to plunger pump station at $100 per hp.	1,800,000
9 1,600-hp. electric centrifugal pump stations at $50 per hp.	720,000
5 55,000-bbl. storage tanks each at origin and destination at 50 cents per bbl.	275,000
Telephone and telegraph system at $500 per mile	330,000
Office and headquarters and trucks and cars	45,000
Total investment to deliver 75,000 bbls. per day	$11,090,000

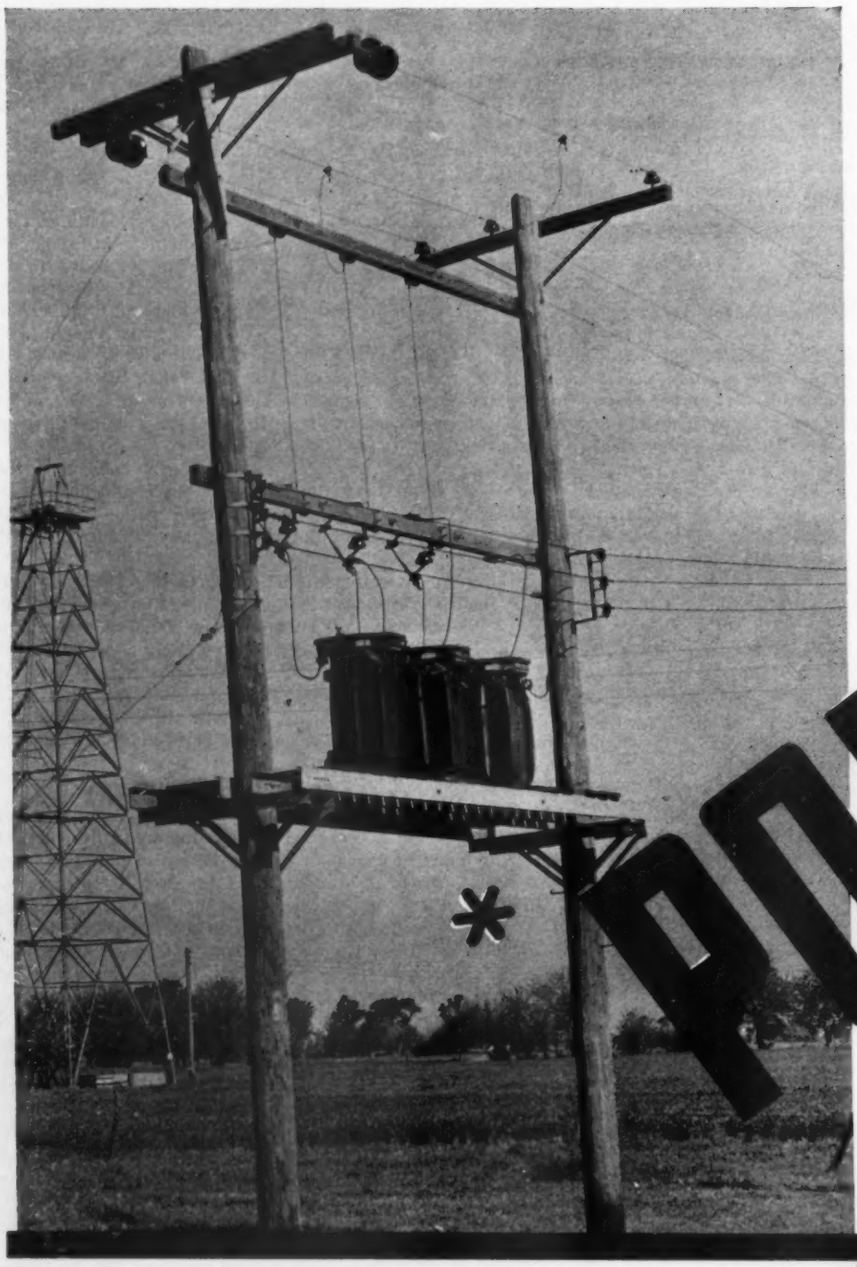
Pumping Costs

The approximation of actual pumping costs of about 2 cents per barrel per hundred miles pumped holds true for most any length of pipe line from 200 to 1,000 miles. Thus, the overall economic aspect justifies the great number of pipe lines throughout the country in that the railroad tankcar freight costs are about five or six times that of pipe line delivery costs. Further justifying the pumping of crude oil and gasoline through pipe lines to refineries and market centers respectively, one should contemplate the vast number of tankcars that would be necessary to handle this business, for in the case of the typical pipe line deliveries alone to Chicago, about 60,000 bbls. daily average throughout the year, it would take 270 average tankcars daily, or about three trains of 90 cars each daily, and after giving consideration to the distance, time to train haul, switching and returning empties, it would require perhaps 2,000 tankcars to duplicate this service alone.

Crude oil and refined products can be transported from Gulf of Mexico ports in Texas and Louisiana to New York City and New England states for about 20 cents per barrel by sea-going tankers of 80,000 to 100,000 bbls. capacity, but since such a great proportion of oil is produced in Oklahoma and West Texas, a distance of 600 miles from the Gulf ports thereby adding 12 cents to 15 cents per barrel of pipe line transportation costs to the tanker cost, there is not a great deal of saving to be considered for crude deliveries to Ohio and western Pennsylvania by tankers.

TABLE 1—NEW PIPE LINES CONSTRUCTED IN UNITED STATES DURING 1927 TO 1931

Company	Origin	Destination	Product pumped	Length line (miles)	Size line (inches)	Capacity of line in bbls./day	No. of pump stations	H.P. of prime mover in each pump station: Electric: Centrifugal	Electric: Plunger	Oil engine: Centrifugal	Oil engine: Plunger	Total H.P.
Atlantic	West Texas	Gulf	Crude	480	10	30,000	8	600	...	...	....	4,800
Ajax	Oklahoma	St. Louis	Crude	392	2–10	65,000	7	...	...	...	1,000	7,000
Great Lakes	Oklahoma	Chicago	Gasoline	587	6	14,000	6	...	...	...	280	
				650	8	28,000	7	...	...	...	560	5,600
Gulf	Oklahoma	Ohio	Crude	783	10	35,000	13	...	...	...	500	6,500
Gulf	West Texas	Gulf	Crude	370	8	20,000	7	...	...	...	400	2,800
Humble	West Texas	Gulf	Crude	330	10	35,000	6	...	...	...	600	3,600
Humble	West Texas	Gulf	Crude	420	8	20,000	7	...	...	...	400	2,800
Illinois	West Texas	Gulf	Crude	230	8	20,000	7	300	...	...	....	2,100
Prairie	North Texas	Oklahoma	Crude	225	8	20,000	6	...	...	...	300	1,800
Pure-Van	North Texas	Gulf	Crude	210	10	30,000	5	500	...	...	....	2,500
Shell	West Texas	Oklahoma	Crude	485	10	40,000	14	800	...	...	....	11,200
Shell	West Texas	Gulf	Crude	450	10	30,000	9	....	500	...	....	4,500
Sinclair	Okla. City	Chicago	Crude	165	12	60,000	4	1,000	...	...	....	4,000
Tex.-Empire	Oklahoma	Chicago	Crude	660	12	50,000	10	...	...	...	1,800	18,000
Tex.-Empire	Boosters in line			Increase capacity		25,000	9	1,600	...	...	....	14,000
Sun	Tidewater	Ohio	Gasoline	450	8	25,000	10	500	...	...	....	5,000
Total H.P. of prime movers installed												96,600



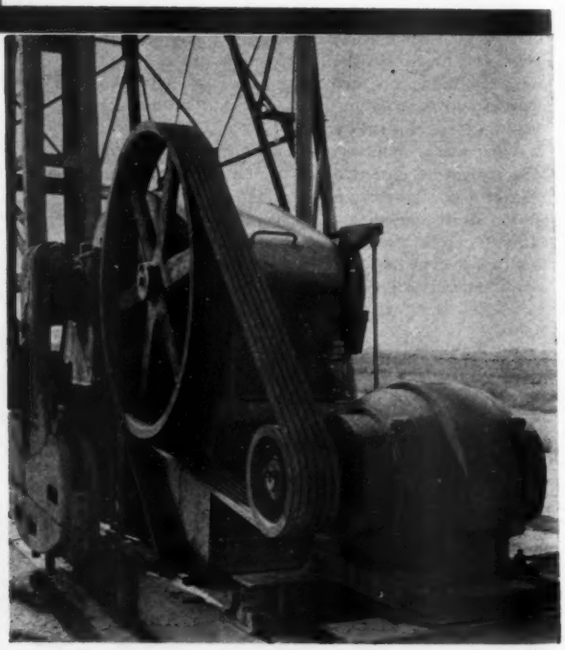
POWER

PROFIT? BY USING ELECTRIC POWER

Visit Our Booth at

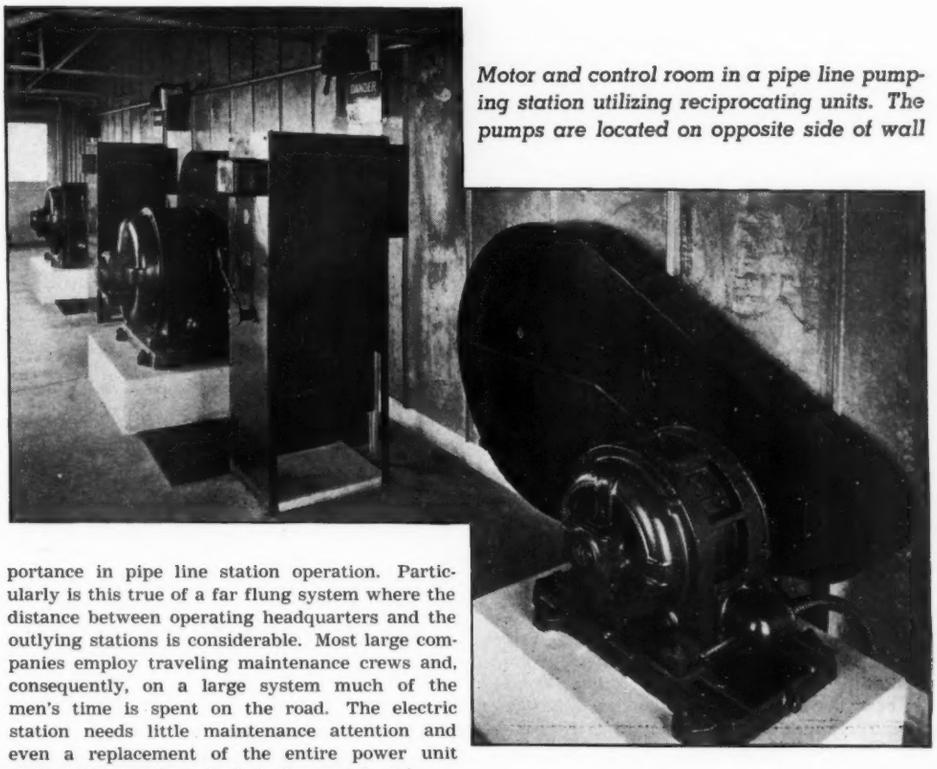
The OIL-WORLD EXPOSITION

Houston, Oct. 11 to 16!



Varying Schedule on Pipe Line Favors Purchase of Power

By K. K. KREAMER
Electrical Engineer
Houston Lighting & Power Co.



Motor and control room in a pipe line pumping station utilizing reciprocating units. The pumps are located on opposite side of wall

The scheduling and maintaining of pipe line pumping operations and the relation of the type of prime mover to the overall costs as they are affected by changes in the schedules is a subject deserving of considerable attention. During the past few years some pipe line companies have experienced rather erratic and widely fluctuating operating conditions, and the advantages of the flexibility of purchased electric power have been forcefully demonstrated during this period. Due to changes in demand for certain crude stocks at various delivery points, it was necessary to cease operation of a number of stations for indefinite periods. These sudden changes were such as were entirely beyond the control of the operating companies and could only result in temporary idleness of equipment and man power. On account of relatively lower investment costs the fixed charges on the electric station were less during the inactive period than with other forms of prime mover. Also, the relatively small operating personnel of the electric station was more easily absorbed elsewhere in the organization. Conversely, some of these same operating companies found it necessary to resume operation of the idle stations on very short notice and in the case of electric stations, operating on purchased electric power, it was possible to start pumping again without much preparation. One operator, faced with a sudden need for increased capacity, recently installed an electric main line booster station ready for operation in one week. The ability to economically and quickly meet drastic changes in operating schedules is a feature of purchased electric power service for pipe line operation.

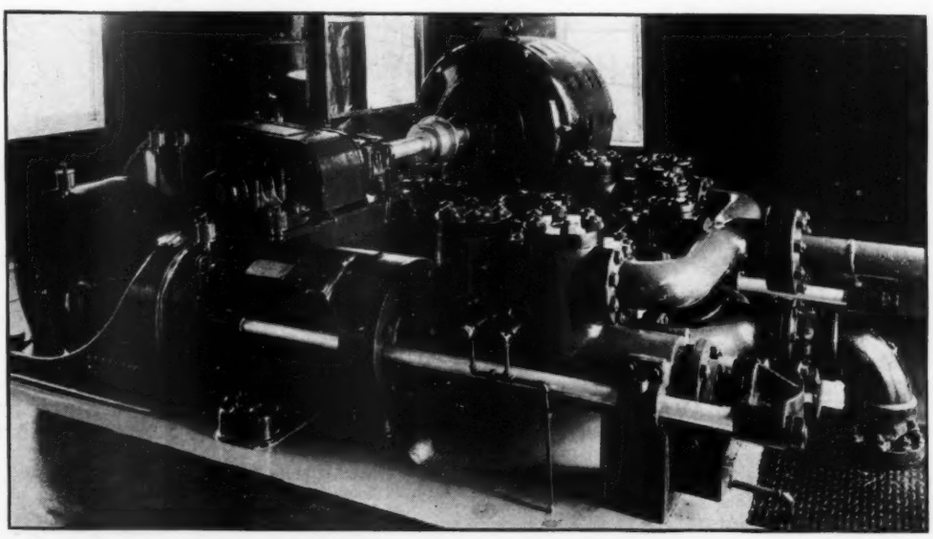
The maintenance of prime movers is always a problem of great importance in pipe line station operation. Particularly is this true of a far flung system where the distance between operating headquarters and the outlying stations is considerable. Most large companies employ traveling maintenance crews and, consequently, on a large system much of the men's time is spent on the road. The electric station needs little maintenance attention and even a replacement of the entire power unit need not be a project of relatively great duration or expense. Not only is the cost of maintenance to be considered but also the availability, on short notice, of skilled talent. Quite recently, one company was contemplating the installation of a station at the far end of the system. Disregarding any advantage in investment cost, the item of maintenance service at this remote location was a deciding factor in the selection of an electric station to operate on purchased power.

PIPE LINE EQUIPMENT OPERATING ON PURCHASED ELECTRIC POWER IN THE HOUSTON AREA

Field or station—	Horsepower installed
Pierce Junction	450
Tomball	250
Raccoon Bend	150
Brookshire	900
Lynchburg	500
South Houston	800
Hastings	500
Barbers Hill	350
West Columbia	250
Hufsmith	600
Humble	250

Within a radius of 50 miles of the city of Houston there are 15 electric pipe line stations operating on purchased electric power and having a total rating in excess of 5,000 hp. In addition to these main line discharge stations, there are a multitude of smaller electric field gathering stations. The equipment installed is composed of a wide variety of designs, both reciprocating and centrifugal, and includes units of early and modern design.

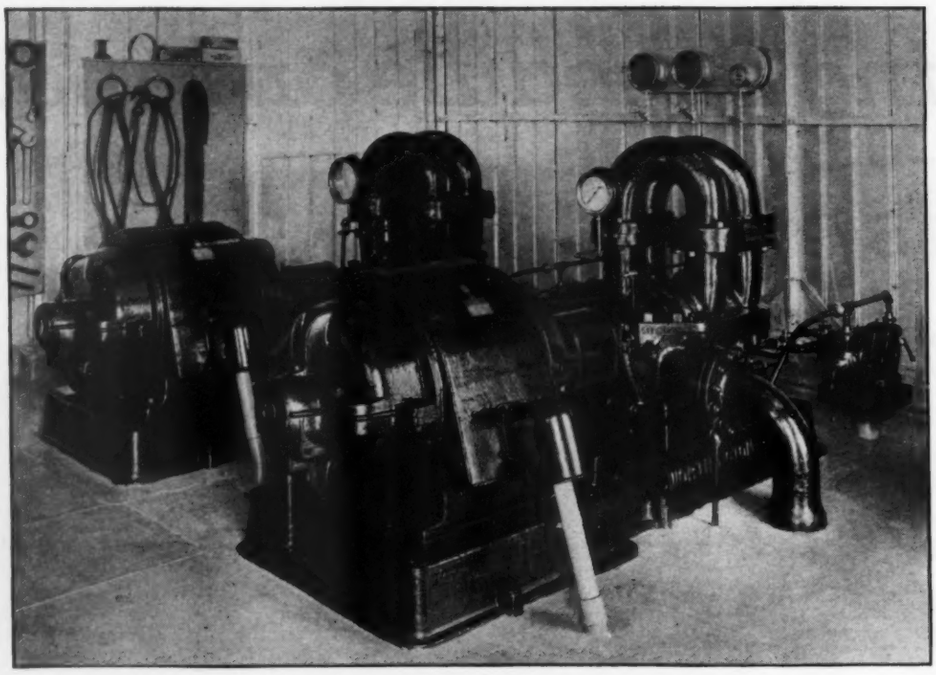
One of the newest is the recently completed station of the Pan American Pipe Line Co. in the South Houston oil field. Here all pumps are of the reciprocating type and include one suction unit powered with a 10-hp. motor, for gathering oil from the field lease tanks, and four main line discharge units each driven by a 75-hp. motor. The station building is a metal structure and is divided into a motor room and a pump room by a sheet steel firewall. The pinion shafts of the pumps extend through the firewall into the motor room and are connected to the motors by V-belt drives. With the present pipe line



Motor-driven 100-hp. reciprocating pipe line pump

facilities the station may be operated at a daily capacity of approximately 40,000 bbls. Through the use of purchased electric power one operator is able to operate the entire station.

Early in 1937 the Pan American Pipe Line Co. also commenced operation of a new electric station in the Hastings oil field and is now engaged with the installation of additional equipment. When completed, the station will have two suction pumps and four discharge pumps. The suction pumps are 15-hp. horizontal reciprocating units and the discharge units are vertical triplex type each powered with a 125-hp. motor. The station building and layout is almost identical with the South Houston station.



Centrifugal pumps in a 500-hp. electrically powered pipe line station

Another important electric pipe line station in the Gulf Coast section is the main line station of the Shell Pipe Line Corp. near Brookshire, Tex., on the New Mexico-West Texas to Houston line. In this station there are two slow-speed horizontal, reciprocating geared units each driven by a direct-connected 300-hp. motor. The capacity of this station is approximately 36,000 bbls. per day at 750 pounds pressure.

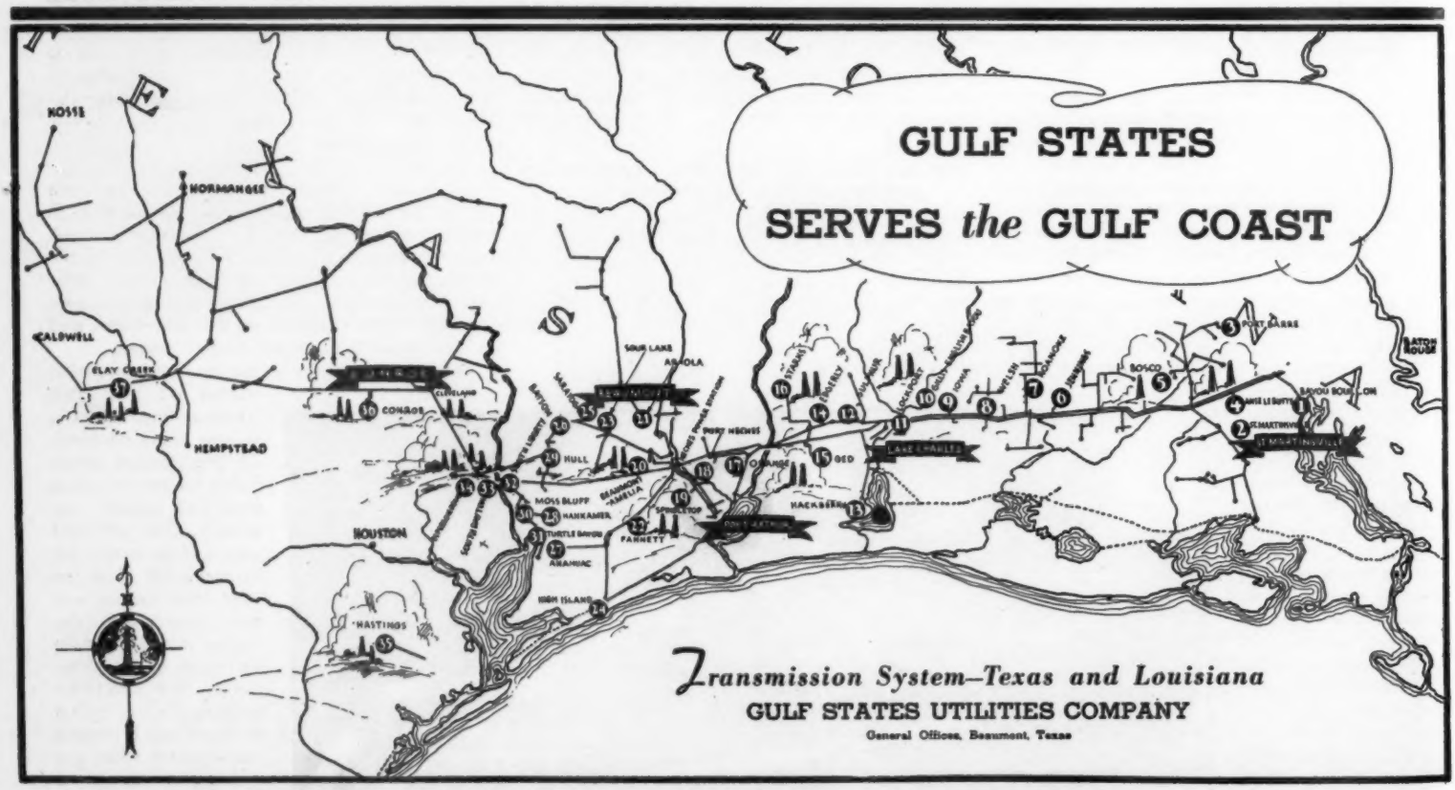
In the Pierce Junction field the Humble Pipe Line Co. operates an electric station consisting of one 300-hp. and one 100-hp. reciprocating unit. This company also has electric stations at Barbers Hill and West Columbia.

Among the electric centrifugal stations in the Houston area are the stations of the Gulf Pipe Line Co. at Lynchburg and South Houston; the Atlantic Pipe Line Co. at Barbers Hill; Texas Pipe Line Co. at Hufsmith; and the Texas-New Mexico Pipe Line Co. at Brookshire.

Correction

In a review of "Chemical Methods for Separating Petroleum Emulsions," the author, Ir. G. W. Baron Van Dedem M. I., advises that the following corrections should be noted.

In the last line of the first column on page 67, August 12, 1937, the percentage should read "50-75 per cent" fatty acid. In article 5 the conclusions on page 68 should read: "For acid water having a low sulfate content the soaps of naphthenic acids should be tried. For acid water with a higher sulfate content, the more stable sulfonates of the fatty acids, alcohols and aromatics as well as petroleum sulfonates should be tried provided these are adapted to the ph. of the water and do not contain antagonistic constituents."



COMPLETE ELECTRIC SERVICE IS MADE AVAILABLE BY GULF STATES UTILITIES COMPANY IN THIRTY-SEVEN OIL FIELDS

FIELDS THAT HAVE BEEN SERVED FOR FIVE YEARS OR LONGER

1 Bayou Bouillon	12 Sulphur	17 Orange	24 High Island	30 Moss Bluff	2* St. Martinsville	20 Beaumont-Amelia
3 Port Barre	13 Hackberry	18 Port Neches	25 Saratoga	32 South Liberty	5 Bosco	21* Arriola
4 Anse Le Butte	14 Edgerly	19 Spindletop	26 Batson	33 South Dayton	7 Roanoke	27 Anahuac
6 Jennings	15 Ged	22 Fannett	28 Hankamer	34 Esperson Dome	9 Iowa	31* Turtle Bayou
8 Welsh	16 Starks	23 Sour Lake	29 Hull	35 Hastings	10 Gillis-English Bayou	36 Conroe
11 Lockport				37 Clay Creek		

*Service within short distance.

In Rodessa and East Texas all Pipe Line Jobs look alike to me!

—says Reddy Kilowatt
Your Electric Servant

I am not afraid of work in any form. I pump wells, operate gathering lines, handle pipe line stations and look after endless important things around refineries.

I get more and more of this oil country work in Rodessa and East Texas, because I handle it to better advantage than it can be handled any other way. In recent years I have been employed on about 80% of all new pipe line installations. I am always available quickly, always dependable, and my services are inexpensive.

During the last five years power engineers with the Southwestern Gas and Electric Company have learned a lot about the application of electric rates and service to oil field jobs. They can tell you how to get maximum results from my efforts, at minimum expense.

Feel free to consult them. They won't put me on any oil field job unless they are pretty sure my new boss would be delighted with my services.

SOUTHWESTERN GAS & ELECTRIC CO.

General Offices: Shreveport, La.

Electric Power Is Moving Half Total East Texas Oil Output

A total of approximately 70,000 installed electrical horsepower is used in the East Texas field to gather and move from main line stations about half of the daily production from that field. Of this amount, almost 20,000 horsepower is installed at the initial main line pumping stations of 10 major pipe line companies. The remaining 50,000 horsepower is installed in gathering stations or in other auxiliary pipe line service.

Atlantic Pipe Line Co., American Liberty Pipe Line Co., Atlas Pipe Line Co., Arkansas Pipe Line Co., Gulf Refining Co., Humble Pipe Line Co., Magnolia Pipe Line Co., Shell Pipe Line Co., Sinclair Refining Co. and Sun-Yount-Lee Pipe Line Co. are operating on purchased electric power at some or all of their initial terminal stations leaving the field.

With few exceptions, the squirrel cage type of induction-motors drive high-speed centrifugal pumps in this work. The East Texas field is particularly adapted to this type of main line unit because of the constant speed required to handle the continuous large volumes at high pressures. There are instances on record where investment costs have been paid out in about 18 months on the new and modern type of electrical motors and centrifugal pumps, through increased operating efficiency and reduced power costs per barrel handled.

Gathering Systems

In East Texas, also, where there is a vast amount of all types of oil field operations, the electrification of pipe line stations has permitted the affiliated production companies to consolidate their other power units through the group billing arrangement, and obtain the lowest rate schedule available. In addition to the gathering and pumping of crude oil through pipe lines, the group billing can include power for pumping, auxiliary lease purposes, water stations, gasoline plant operation, and domestic use in camps and offices.

Considerable savings are often made at gathering stations and other smaller points of power consumption by spreading their operations out as evenly as possible throughout each 24-hour day, thereby achieving a minimum electrical power demand for the whole system. The wide variety of operations throughout such a vast area as the East Texas field offers splended opportunities for economies in this direction.

Dependability of power in such a field as East Texas is all important, where daily volumes of up from 40,000 to 60,000 bbls. must be moved day in and day out. This is partially true at the initial terminal stations, as any shutdowns here would mean the suspension of operations all the way down the line, and possibly a loss in production if sufficient tankage was not available. The need to provide the field with rapidly enlarging outlets during its early life also prompted the use of electrical power, as plants of this type can be constructed with a considerable saving in time over some other types, with substantially lower investment costs.

In the accompanying photographs, some of the representative electrical stations in East Texas are shown. Attention is called to their compactness and small size stations required to handle the large volumes. The cleanliness, safety, and automatic features are also very noticeable.

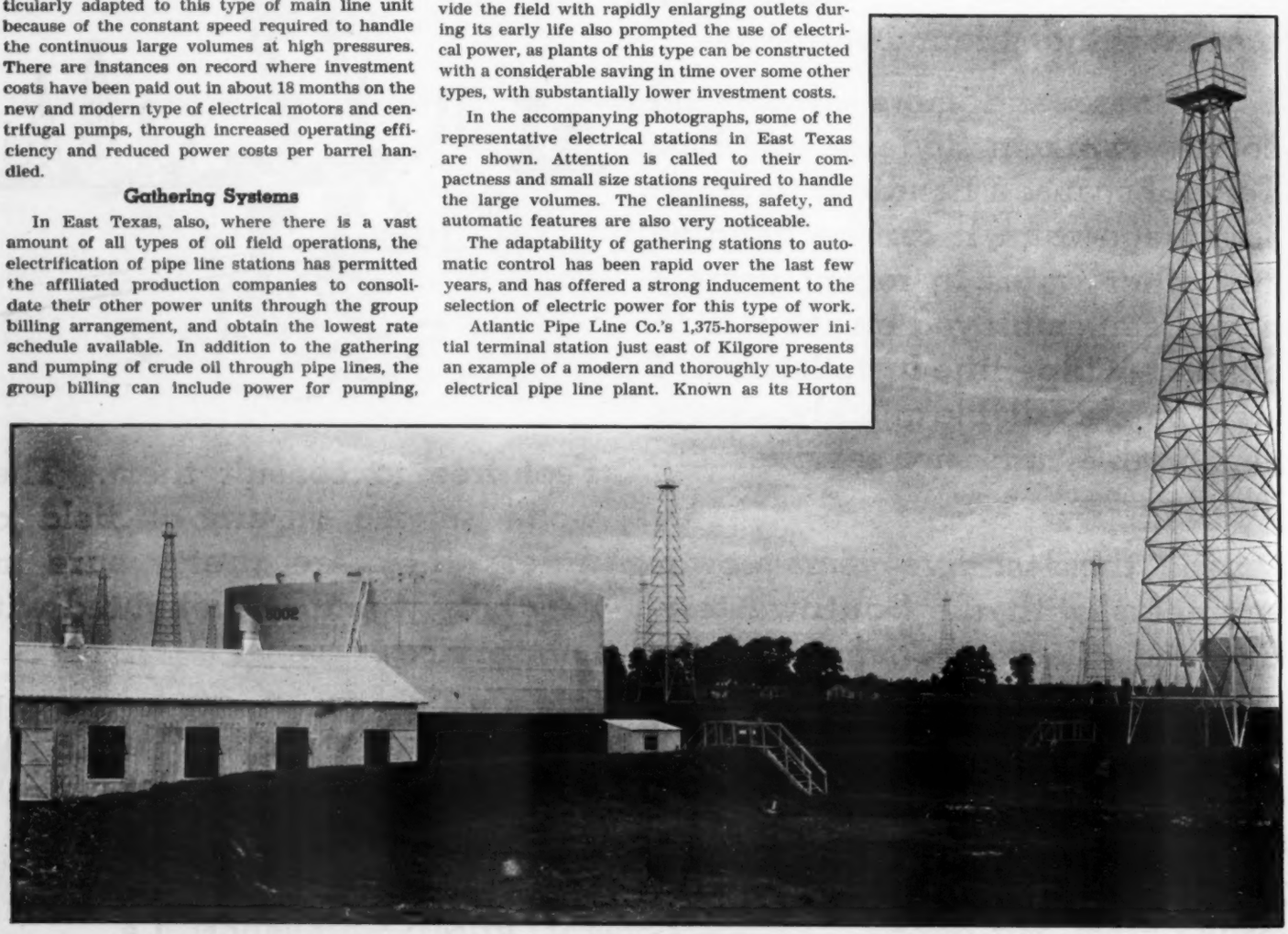
The adaptability of gathering stations to automatic control has been rapid over the last few years, and has offered a strong inducement to the selection of electric power for this type of work.

Atlantic Pipe Line Co.'s 1,375-horsepower initial terminal station just east of Kilgore presents an example of a modern and thoroughly up-to-date electrical pipe line plant. Known as its Horton station, it is situated in the Sabine River Valley at one of the lowest points in the center of the field. A great deal of the oil from their approximately 1,250 connections gravitate to Horton from the northern part of the field and from some leases south of Kilgore.

Horton Station

A vacuum station is operated at Horton to gather all the oil from leases in this territory not favorable to the advantage of gravity. Two 8 by 10 three-cylinder Goulds vertical type vacuum pumps and one rotary pump with 8-inch suction and 6-inch discharge is used for this purpose. Suction pressure on the gathering system is about 2 inches vacuum, while the discharge is from 10 to 35 pounds to station storage, depending upon the fluid level of the tank into which crude is being delivered. The vacuum pumps are separated from

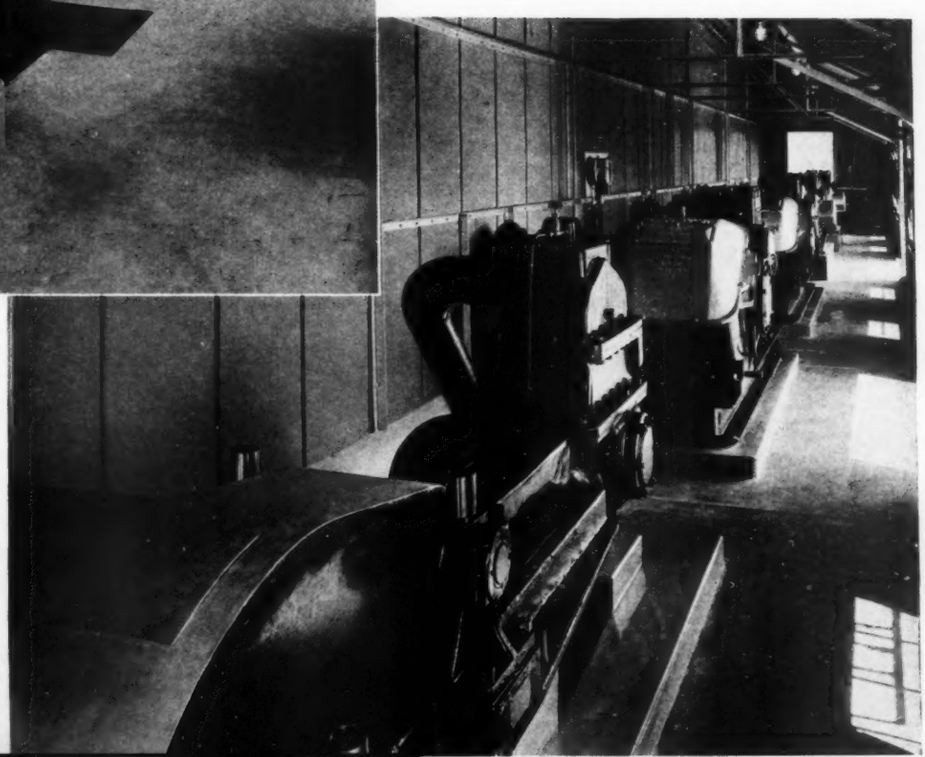
(Continued on Page 174)



Sun-Yount-Lee Pipe Line Co.'s 1,000-hp. electric-powered pumping station at Grissom, Tex., where crude oil is discharged into the main line at the rate of about 2,200 bbls. per hour. The station is located in the East Texas field

Again — IT'S PURCHASED Electric POWER

PAN AMERICAN PIPE LINE COMPANY'S NEW 40,000-BARREL STATION IN THE SOUTH HOUSTON OIL FIELD

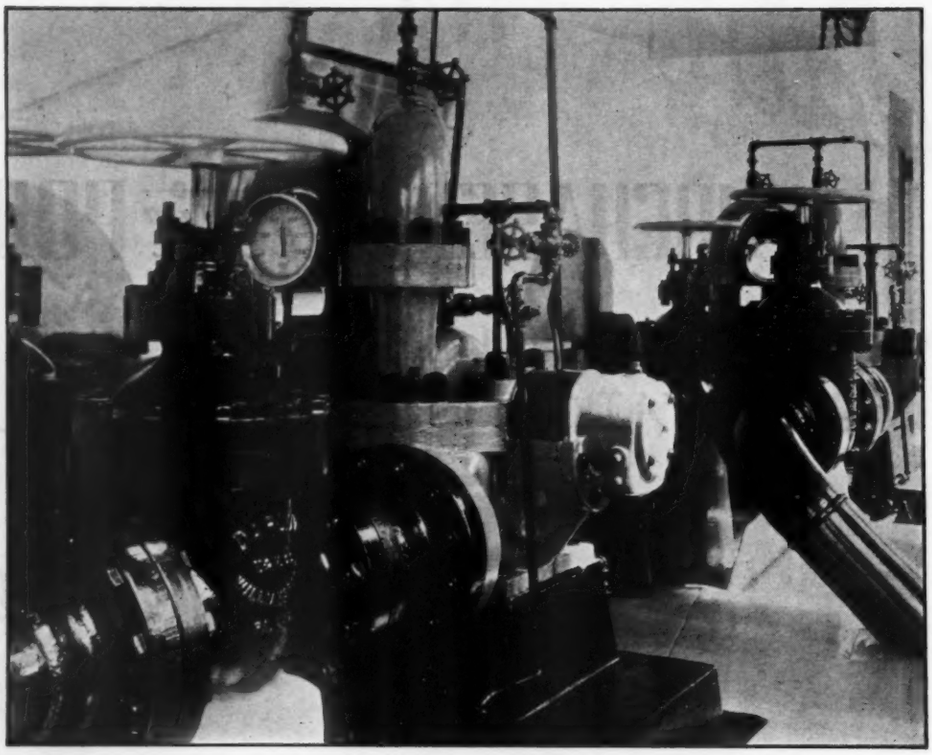


Above—Part of Motor and Control Room.

Right—Pump Room.

their driving motors by a fire wall. The two vertical type vacuum pumps are driven by 25-horsepower G.E. three-phase 2,300-volt induction motors, operating at 1,200 r.p.m. through chain drive. The rotary pump is shaft driven by the same size and type motor.

To permit flexibility of operations, two delivery pump stations are installed here. Station No. 1 is equipped with two Byron Jackson 4-inch four-stage centrifugal pumps operating in series. The first unit takes oil from the tanks at about 12 pounds and boosts it to 450 pounds, thence to the high-pressure unit which discharges the oil into the 10-inch main line at pressures ranging from 750 to 850 pounds to their Mount Enterprise station 48 miles south of Horton. At this pressure range oil is moved at the rate of about 1,350 bbls. per hour. Both units are shaft driven through a fire wall by 250-horsepower G.E. 2,300-volt three-phase induction motors, having a maximum speed of 3,600 r.p.m.



Interior of Atlantic Pipe Line Co.'s No. 1 plant at its Horton station in the East Texas field. Electric motors are separated from the centrifugal pumps by a firewall

Connects With Illinois Line

This 10-inch line also receives oil at Carlisle from the Illinois Pipe Line Co.'s gathering system. Daily volumes from this source average about 7,500 bbls. Atlantic's Moore field station about midway between the Horton and Carlisle plants also delivers about the same amount daily into the main line.

Station No. 2 at Horton has been added in order to afford a standby in case of a shutdown at station No. 1, and also to permit increased deliveries from Horton when and as the occasion demands. Here two Byron Jackson 6-inch three-stage centrifugal pumps, 3,600 r.p.m., are installed in series to handle a peak of about 45,000 bbls. per day at discharge pressure of about 870 pounds. These units are shaft driven through a fire wall by two 400-horsepower G.E. 2,300-vole three-phase induction motors. The Moore or Carlisle stations do not deliver into the line south of Horton when station No. 2 is operating.

All safety precautions have been observed in the construction of this station. Push-button switches are submerged in oil to eliminate any possibility of sparks. The switches are so arranged as to actuate relays that release the switch to the starting compensators, and shut off the motors. All conduit, condulets and lighting fixtures are explosion proof. In the motor rooms temperature relays are installed, which will stop the motors when room temperature reaches a peak around 120° F. Exhaust fans are operated to keep air circulating and cool around the high-speed motors.

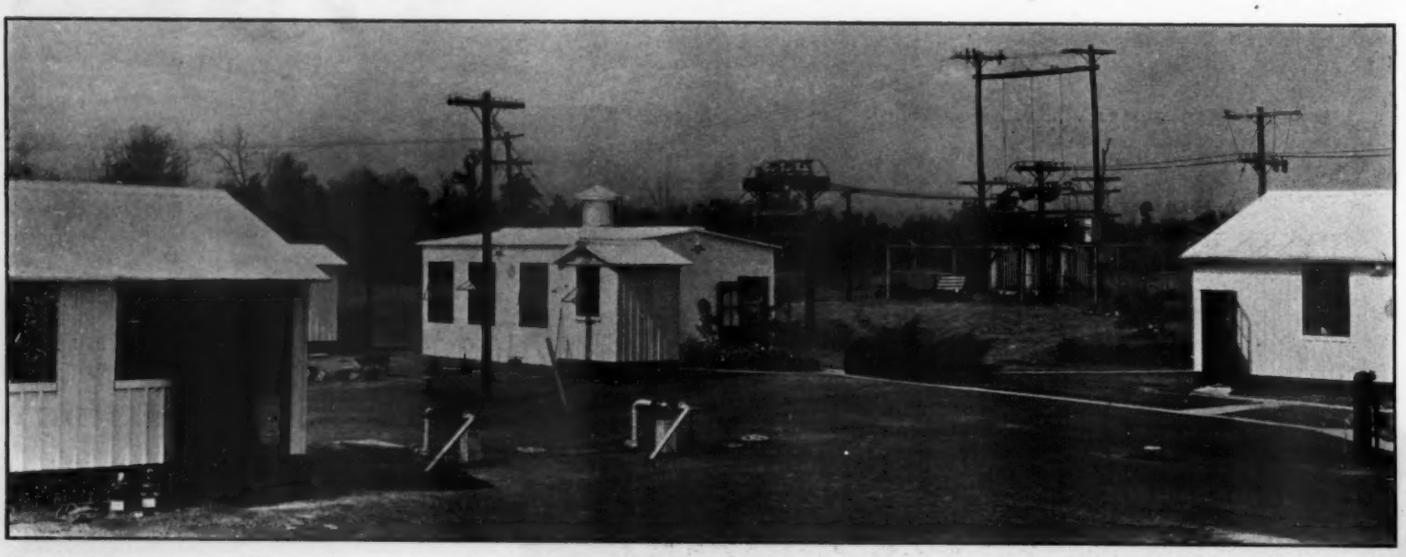
The American Liberty Pipe Line Co. is handling about 900 bbls. per hour from its 300-horsepower electrical station at Bridewell, north of New London. They deliver to their Summerfield station, south of the field, another electrical station of about the same design.

At Bridewell two three-stage 3-inch Worthington centrifugal pumps are shaft driven by two 150-horsepower Westinghouse explosion-proof induction motors. They can be operated either singular or in series. When the gathering stations between Bridewell and Summerfield are delivering into the line, only one of the units at Bridewell operates, discharging into the main line at a pressure of about 400 pounds. When full delivery is being made from Bridewell, the units operate in series and discharge at a pressure of about 600 pounds through the 8-inch line to Rusk and Northworthy.

Sun-Yount-Lee Station

The Sun-Yount-Lee Pipe Line Co. operates one of the largest installations in the field. Its Grissom initial terminal in the southern end of the field, a 1,000-horsepower electrical plant, delivers oil to their 10-inch main line to Sun City on the coast at the rate of about 2,200 bbls. per hour.

This company has recently installed a relay station in about the center of the field which permits gathering stations north of that point to deliver into a 55,000-bbl. tank there during the time



Atlantic Pipe Line Co.'s Horton, Tex., station, having an installed horsepower of 1,375 on the main line pumps. Station No. 1 is seen to the left of the transformer bank and Station No. 2 to the right. The latter was added to provide reserve capacity

PLANNING FOR THE FUTURE IS ECONOMICAL AND EASY WITH PUBLIC SERVICE COMPANY POWER

YOU

1. **SAVE INVESTMENT IN EQUIPMENT.**

   You can add additional capacity in small increments quickly and easily, as needed.

   You eliminate possible losses due to having large amounts of money tied up in power plant equipment because of the impossibility of accurately forecasting the capacity required.

2. **SAVE TIME AND COST OF EQUIPMENT INSTALLATION.**

   Time required for installation is a matter of days instead of weeks by reducing engineering design and expense, reducing construction details and simplifying building design.

3. **SAVE FIXED CHARGES.**

   You buy power as you need it—capacity paid for, and usage, always coincide. Your power costs decrease when an unpredicted decrease in usage occurs. You then save the expense of interest, depreciation and taxes on idle equipment.

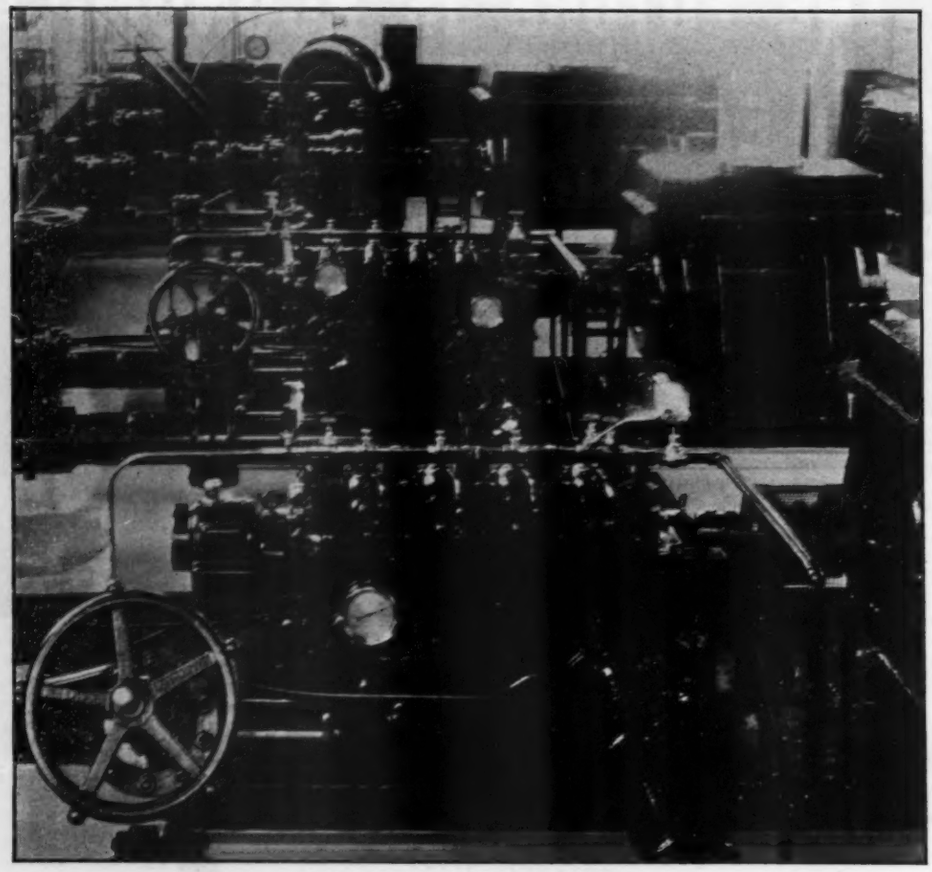
4. **SAVE ALL WORRY ABOUT THE CHARACTER AND SIZE OF FUTURE POWER REQUIREMENTS.**

   The Public Service Company of Oklahoma power system operated by capable and experienced engineers relieves you of all power plant risks.

WE SERVE EASTERN OKLAHOMA

Consult Our Power Engineers on Power Problems

Public Service Company of Oklahoma



Interior view of Sun-Yount-Lee Pipe Line Co.'s 1,000-hp. electrical main line station at Grissom, in the southern end of the East Texas field. One of the largest in the field

the stations south are delivering to the Grissom station. When the southern stations are shut down a portion of each day, the relay station starts up and delivers to Grissom. Many obvious advantages in reduced pressures, lower power costs, and increased operating efficiency have been effected by this relay station installation.

Grissom is a three-unit station, two of which are 300 horsepower G.E. 2,300-volt three-phase induction-type motors, peak speed of 3,600 r.p.m. operating through shaft-drive Allis-Chalmers 6 by 5 four-stage centrifugal pumps, taking the oil from storage through 6-inch suction and discharging through 8-inch at about 460 pounds pressure. Taking the deliveries at this pressure a 400-horsepower G.E. 2,300-volt induction motor shaft drives a 6-inch four-stage Byron Jackson centrifugal pump at speeds up to about 3,600 r.p.m. and discharges into the main line at about 880 pounds. The two 300-horsepower units may operate to discharge into the line at about 480 pounds and handle about 1,500 bbls. per hour, or the one 400-horsepower unit may operate alone and deliver at 600 pounds pressure at the rate of about 1,200 bbls. per hour. Or, to further extend the flexibility of the plant, one of the 300-horsepower and the 400-horsepower units may operate in series, or all three in series. Under normal operations, all three units operate in series, moving about 2,200 bbls. per hour.

Automatic Features

Automatic control and safety measures have been closely observed here. The starting compensators are automatic; operator need only push a flash-proof button and the motor is started and rapidly gains its normal speed; they are shut off in the same manner. Mercoid control switches are installed to shut off the motors when a vacuum of 1-inch or a high-pressure of 920 pounds is exerted on the system. Eight-inch Venturi meters are used to inform operators of the rate of discharge at all times; rates up to 2,700 bbls. per hour are registered upon the face of the meter.

Shell Pipe Line Co. recently enlarged the capacity of its 10-inch electrically-operated pipe line from Kilgore to Houston by the addition of 5,400 horsepower, which included the construction of three intermediate 1,500-horsepower stations, and the addition of a 300-horsepower unit at each of the three original stations. Total electrical horsepower of that system is now 7,200.

By this recent addition of power, the line capacity was increased from 35,000 bbls. daily to its present peak capacity of about 54,000 bbls.

In the newly constructed intermediate stations, three 500-horsepower motors are direct-connected to 8 by 6 multistage, 3,750 r.p.m. double-suction, centrifugal pumps. Two of the units at each station operate in series and pump to the main line at discharge pressures approximating 700 pounds. The third unit is maintained as a standby.

Movement from Storage to Refinery Held Taxable

The United States District Court, Eastern District of Louisiana, holds that the movement of petroleum and its products from refinery storage by the Mexican Petroleum Corp. of Louisiana, Inc., through pipe lines to vessels at the corporation's wharf at the refinery site constituted a taxable movement of petroleum and it products.

The opinion delivered by Judge W. G. Borah follows:

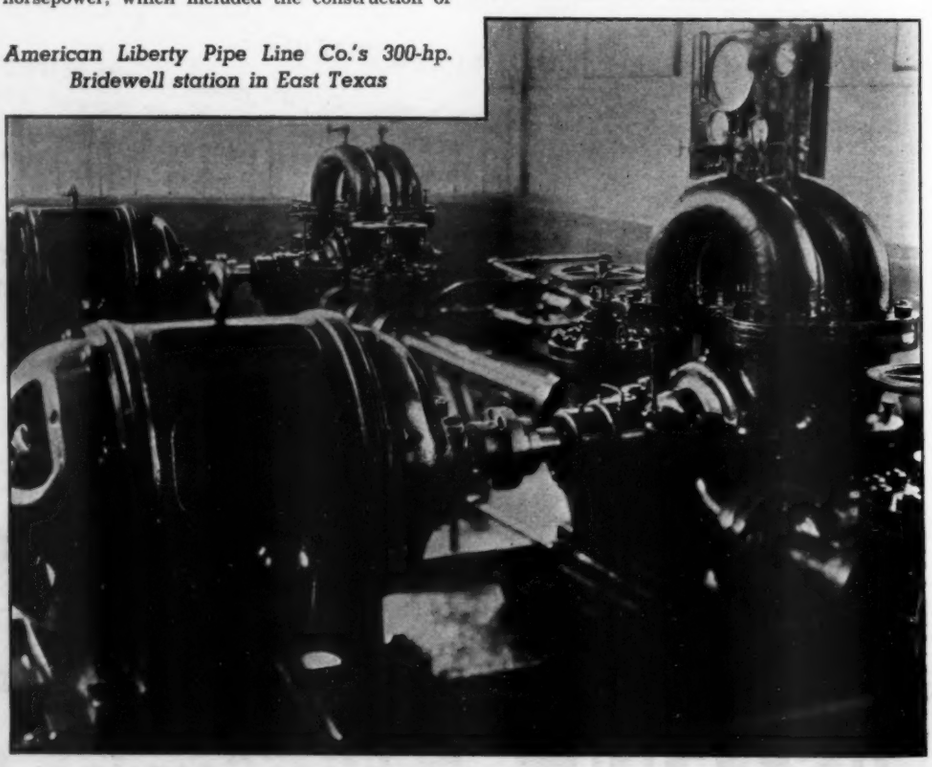
"The court adopts as its findings of fact the facts set forth in the stipulation signed by the parties and filed in the case.

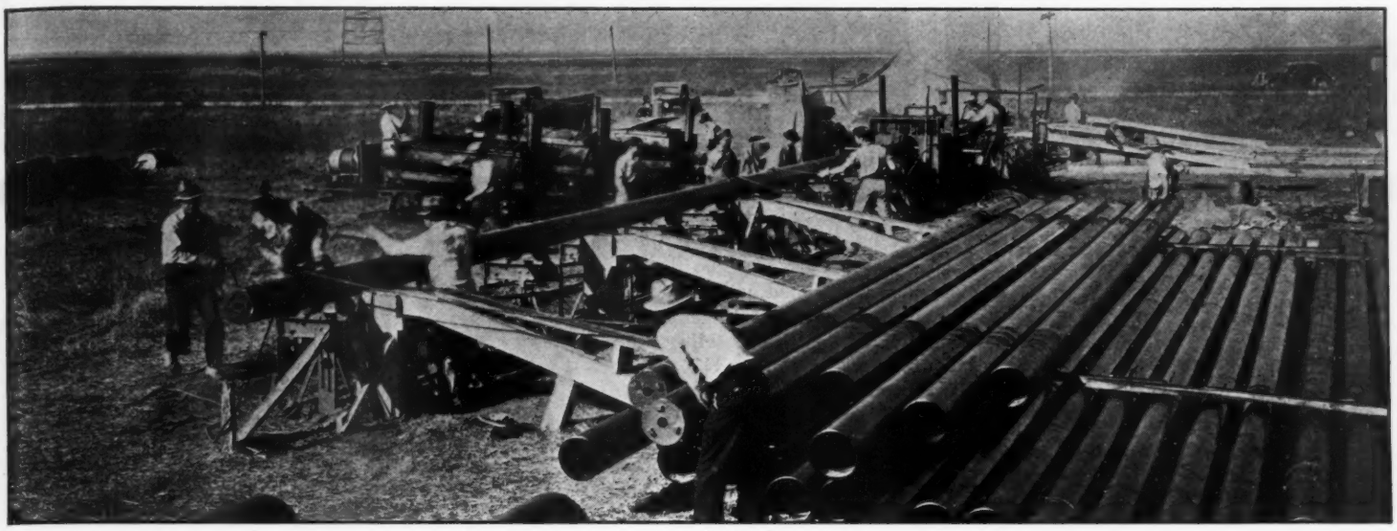
"The movement of petroleum and its products from the corporation's refinery storage at the refinery site through the pipe lines to vessels at the corporation's wharf at said refinery site constituted a taxable movement of petroleum and its products. The commissioner of internal revenue properly disallowed plaintiff's claims for refund. Under the pleadings and the facts no judgment would lie in favor of the plaintiffs.

"It is immaterial to a decision of this case that the pipe lines through which the oil was transported were privately owned and were situated on plaintiff's property; the ownership of the petroleum and its products transported by pipe lines is likewise immaterial.

"Defendant herein is entitled to judgment as prayed for, and accordingly the plaintiffs' suit should be dismissed at its cost."

American Liberty Pipe Line Co.'s 300-hp. Bridewell station in East Texas





Primed pipe being run through mechanical coating and wrapping machines

Central Coating and Wrapping Plants Speed Laying Line

By NEIL WILLIAMS

Humble Oil & Refining Co. this summer completed and placed in operation a 10-inch gas line from the Tomball field, northern Harris County, to Port Arthur, Tex. With gas drawn not only from Tomball but also from the Anahuac field, Chambers County, near which it passes, the line is serving various large industrial consumers of both the Houston Ship Channel and Sabine districts. It adds another major gas system for the Gulf Coast.

Routed by way of Houston and Baytown, where Humble's large refinery is located, the line is 122 miles long. Of this, 103 miles is new line, 78 miles being between Baytown and Port Arthur, and 25 miles from Tomball to East Houston. Between East Houston and Baytown, a stretch of 19 miles, an abandoned oil line acquired from Pan American Pipe Line Co. was converted to gas service and utilized, saving the laying of new pipe.

Laying of the line was handled out of centrally and accessibly located loading points along the route where pipe coating and wrapping yards were established. The latter work, which was done by Mayes Brothers of Houston, was one of the most interesting phases of laying the line. Four such yards were operated on the Baytown-Port Arthur section of the line, and two, including Mayes Brothers' main plant at Houston, on the Tomball-East Houston end.

Some Heavily Wrapped

At these yards, located adjacent railroad sidings, the pipe, cleaned and primed at the mill and shipped in 40-foot joints, was unloaded and racked. Stationary machines to clean and prime, and coat and wrap the pipe were set up at these yards, and from these yards the pipe was hauled by truck to the line for stringing.

On the Baytown-Port Arthur section, two yards were operated at a time. Laying of line was started from both ends of the section, and the first yards were set up at Mount Belvieu, serving the Baytown end, and at Port Acres, serving the Port Arthur end. As work progressed eastward on the Baytown end, the Mount Belvieu yard was moved to Liberty, and in the same way, as the work on the Port Arthur end progressed westward, the Port Acres yard was moved to Hampshire.

Tomball-East Houston Section

On the Tomball-East Houston section, most of the main line pipe was handled out of the permanent cleaning and coating plant at Houston, which by coincidence is located within a short distance of the line. Most of the pipe at the Tomball yard was for gathering lines about the field.

Protection provided the pipe included one coat of No. 7 Humble primer, two coats of Ennjay asphalt enamel applied to a thickness of 3/32-inch, one wrapping with 15-pound asbestos felt bonded, and one wrapping with 60-pound Kraft paper. The pipe first was run through the stationary cleaning machine, in which operation the primer coat also was applied. The pipe then was rolled to the coating and wrapping machine, which applied consecutively the two coatings and wrapping in a single operation. The enamel, which has a melting point of 200 degrees, was applied at a temperature of 450 degrees, controlled automatically by the machine.

While there was little chance for holidays, detectors were run over the finished pipe before it left the yard as an extra precaution. From the pipe rack at the yard the pipe was loaded on stringing trucks, equipped with rubber bolsters to prevent damage to the coating, and hauled to the right of way.

To facilitate movement of the pipe to the right of way, diesel tractors met all trucks as they left the main highways, and pulled them, two trucks at a time, to the right of way. In some instances, due to extra boggy conditions, it was necessary to use two tractors to a truck. The trucks worked on scheduled time, and with tractors at appointed places to meet them, no time was lost by stringing crews.

Except for the Trinity River crossing, which was arc welded, the line was electrically welded. Where possible the 40-foot joints were first welded into sections for laying, although in many places, due to boggy conditions, the line was stovepipe welded, joint at a time. Welds and the bare ends of the pipe then were hand cleaned, coated and wrapped.

A 36-inch ditch was dug where possible. However, in many places on the Port Arthur end of the line, it was impossible to keep an open ditch long enough to lay the pipe, and in some stretches the ground was so boggy and wet that the ditch had to be backfilled immediately upon laying the pipe to prevent the pipe from rising. At intervals the line was plugged and tested with 100 pounds air pressure to detect any possible leaks.

Some of the most difficult conditions were encountered along the Baytown-Port Arthur section of the line. There were long stretches of heavily wooded country with bogs, quicksand and silt that

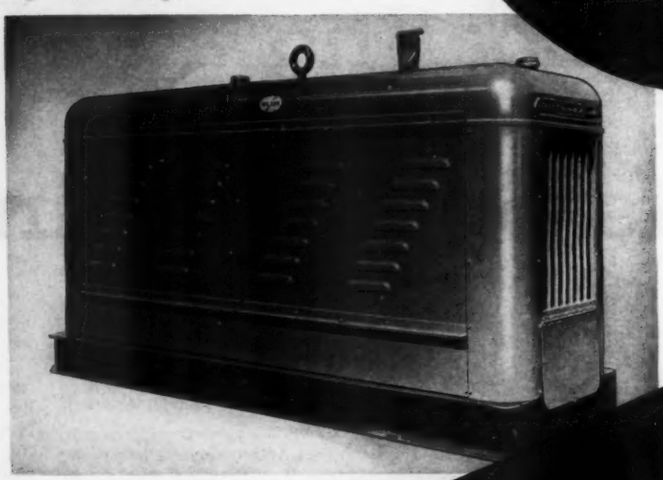
(Continued on Page 183)

RESULTS that indi pipe line

The "YELLOW JACKET"

Specifically designed and developed to meet the difficult conditions often encountered in pipe line welding. Important features include: light weight—rigid strength—low center of gravity—improved automatic idling device—large gasoline tank—close coupling of drive and generator. Many other features covered in the complete catalog—on request. You can depend upon it to get sound welds at rock bottom cost from start to finish of the job. Requires fewer time consuming interruptions for adjusting circuit voltages.

WILSON ARC WELDING MACHINES



Simplifying Bell Hole Welding

WILSON or AIRCO "BELL HOLE" electrodes, all position, is recommended. Its ductility, toughness and strength are particularly appreciated when "stovepiping" a line. On the generally accepted list of Hartford Steam Boiler Inspection & Insurance Co. Meets the rigid specifications such as ASME. U-68 Class 1 and U-69 Class 2 work.

The photograph shows "Stovepiping" with WILSON "BELL HOLE" electrodes, typical of many jobs now in progress.

CRC

AIR REDUCTION

Coated and wrapped pipe racked and ready for the contractor

gave particular trouble. These stretches not only hampered the movement of equipment, stringing of pipe and laying line, but almost prevented access by foot. Across one 8,000-foot stretch through Hildebrant swamp just out of Port Acres, near Port Arthur, the line had to be laid from mats. These mats were constructed in 6-foot by 10-foot sections of 3-inch timbers, and as the tractors laying the line would move forward, they would pick up the reed mat section with their booms and set the section down in front.

Push Pipe Into Position

In places where it was impossible to clear a ditch or keep an open ditch due to shifting quicksand, silt or water, "stompers" were improvised to push the pipe down. These were made of 3-inch timbers bolted together with "U" bolts and grooved at the bottom to fit the face of the pipe. The grooves were padded with 6 inches of sawdust in sacks to prevent damage to coating. By driving a tractor onto a stomper and rocking back and forth, the pipe would be forced down.

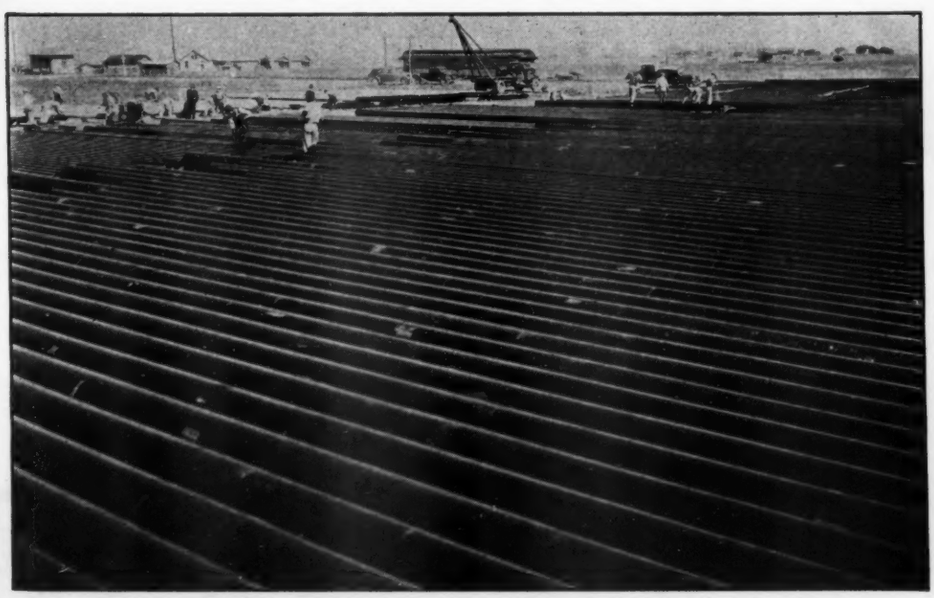
The Tomball section, although the right of way is through good farming land, also gave much trouble in places. Below the surface the soil was very soft in places, and equipment frequently bogged down, and in some cases almost sank from sight after standing on apparently dry land. Unfavorable weather and rains caused many delays on this section and materially slowed up work.

Seven sizable rivers or bayous were crossed. The crossings were made with little trouble. Crossing of the Trinity River, the largest stretch of water crossed, was delayed as long as possible, allowing the water to recede to its lowest level and the bottoms to dry out. Across the Trinity River the weight of the pipe was increased to 43 by 48 pounds, and the line was arc welded. Weight of the pipe on the line is 40 by 48 pounds.

The Tomball-East Houston and the Baytown-Port Arthur sections were laid under two separate contracts, Tom Jones had the former section, and Apex Construction Co. the latter.

Gas Line in Poland

A modern pipe line system is to be constructed from the oil field in western Galicia to supply central Poland with natural gas. The line will run from Rostoki, through Kolbuschowa, Tarnobrzeg, Sandomirz and Lubien. A local distribution system will be built to supply the West Galician towns of Gorlice, Krynica, Tarnow, Rzeszow, Jaroslau and Przeworsk.



Forty-foot lengths of 10-inch ready for cleaning and priming

Ask the Man Who Pulls 'Em!

Yes, you'll find these O'Bannon Pumping Accessories first choice wherever *safety* is the watchword of the gang foreman.

O'Bannon "S" Link

Permits you to connect line and hook quickly, with *safety*.

O'Bannon Frontlock Safety Sucker Rod Hooks

Fast working — Easy to operate with *safety*.

O'Bannon Safety Sucker Rod Elevators

A sure hold on rod until operator releases—*safety*.

O'Bannon Hinged Bell Nipple

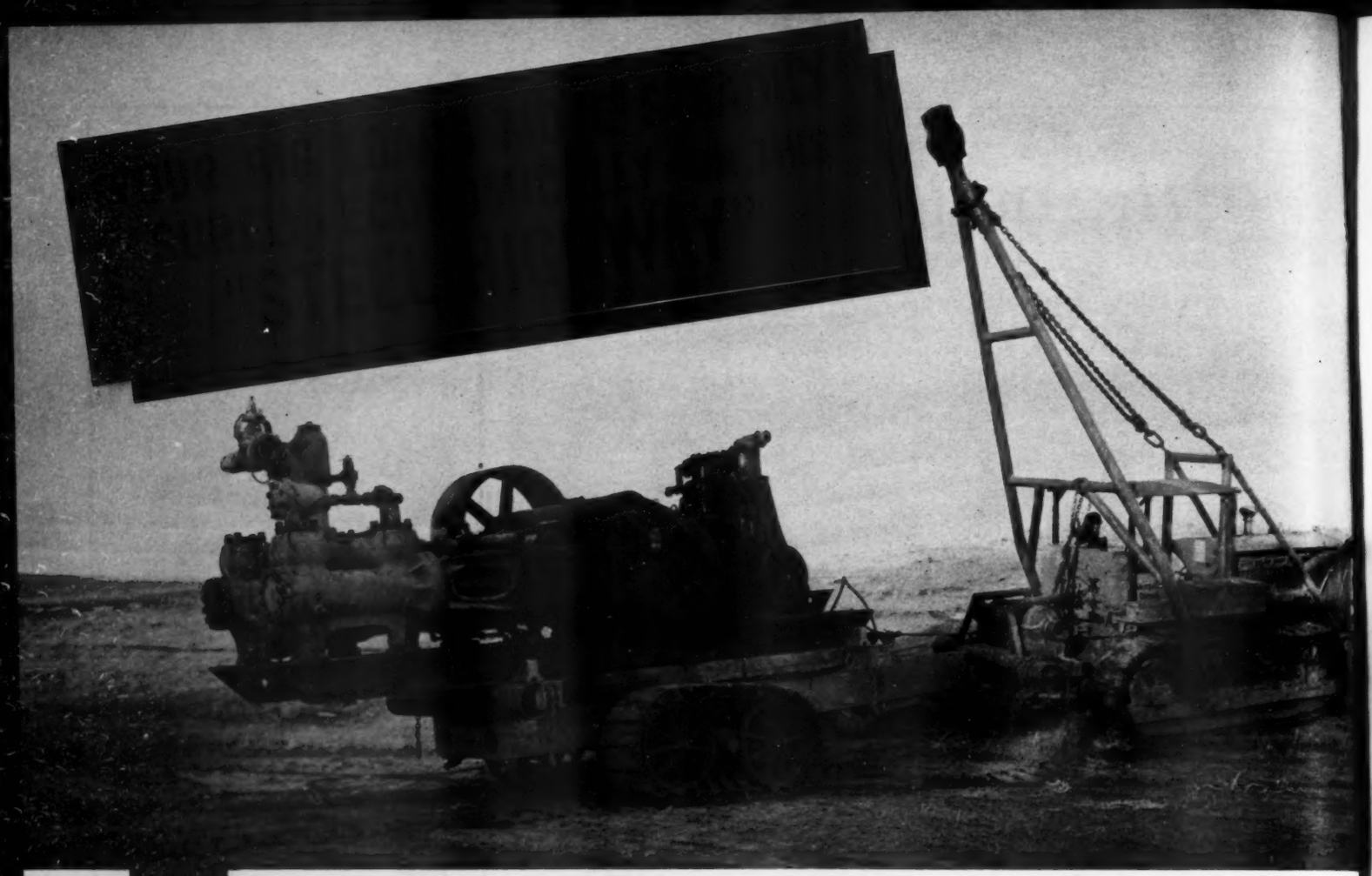
Serves as a seat for elevator, protects threads in Tee, and guides rods into tubing.

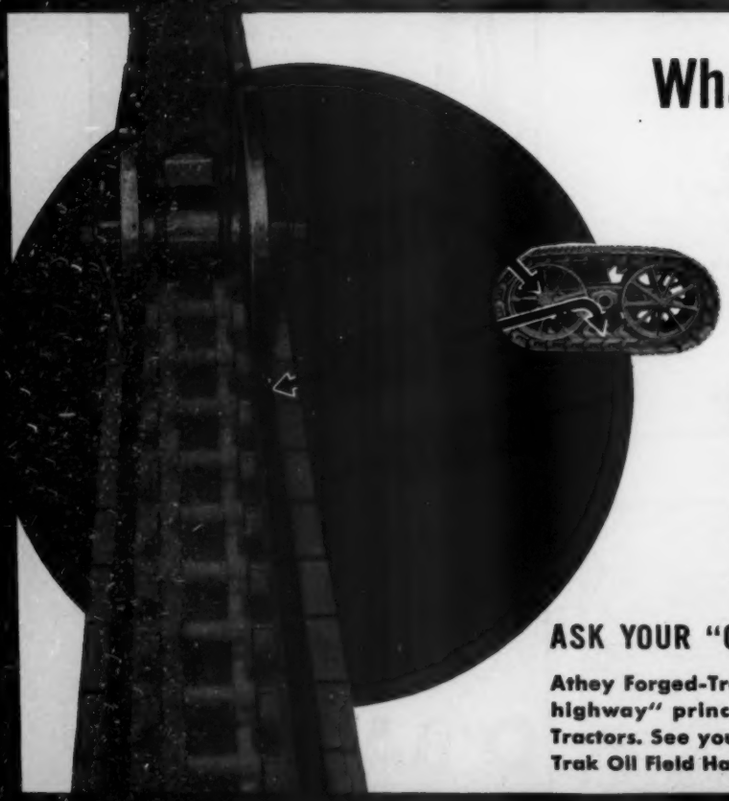
AT YOUR SUPPLY STORE

Walter O'Bannon Company
Tulsa, Oklahoma

O'BANNON

SAFETY PUMPING ACCESSORIES





What is the steel highway?

Here is an Athey Forged-Trak Wheel. It consists of steel rails mounted on a self-laying steel roadbed . . . and heavy-duty ball bearing wheels running on the rails. This combination produces the easiest running all-weather wheel—a wheel that *lays its own roadbed over mud, sand or rough ground.*

What does it mean to YOU?

When you haul your loads on Athey Forged-Trak Wheels, you are independent of ground and weather conditions . . . free from delays. Your loads move on schedule anywhere, in any season. Your hauling cost per ton-mile goes DOWN.

ASK YOUR "CATERPILLAR" DEALER

Athey Forged-Trak Wagons and Trailers—built on the "steel highway" principle—are used with "Caterpillar" Diesel Tractors. See your "Caterpillar Dealer" about Athey Forged-Trak Oil Field Hauling Units, or write us direct.

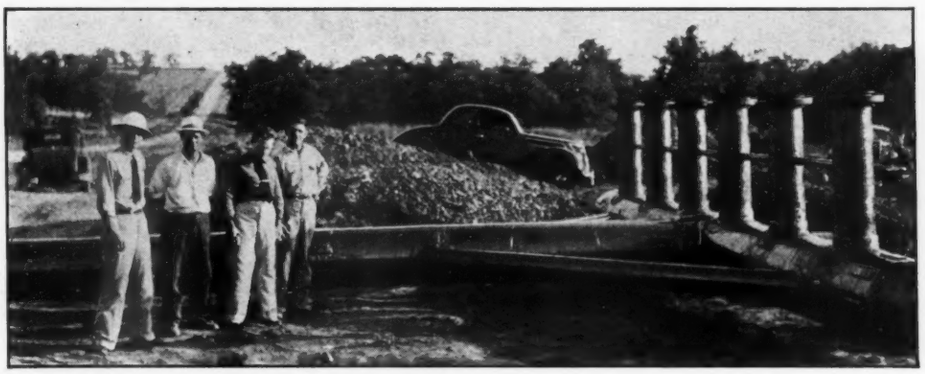
Panhandle Eastern's Looping Program Largest of Year

By W. T. ZIEGENHAIN

The Panhandle Eastern Pipe Line Co. within the next six weeks expects to complete all construction work on its major 1937 expansion program and by early fall will have in operation the eight new loops along the company's 859 miles of main gas trunk line extending from the Panhandle field of Texas to a point on the Illinois-Indiana border where it connects with the facilities of Michigan Gas Transmission Corp., owner of the connecting line through which Detroit City Gas Co. receives it supply of natural gas.

The original 24-inch, 22-inch and 20-inch main pipe line was laid in 1930 and 1931. It serves towns and cities along its route through Kansas, Missouri and Illinois, terminating at the Indiana-Illinois state line where it connected with the 20-inch pipe line of Indiana Gas Transmission Corp., predecessor of Michigan Transmission Corp. Early in 1936 the announcement was made that arrangements had been made whereby Michigan Gas Transmission Corp. would lay a 230-mile, 22-inch gas line connecting with the original line at Zionville, Ind., and extending to Detroit, Mich. The job of laying this line was completed July 5 of last year and the first natural gas deliveries were made to Detroit City Gas Co. on July 9, 1936. (*The Oil and Gas Journal*, July 2, 1936, page 10.)

On that day, gas entering the homes of Detroit customers after traveling a distance of almost 1,200 miles marked a substantial step forward in bringing greater comfort, cleanliness and convenience to families and to industrial plants remotely situated from natural gas producing areas.



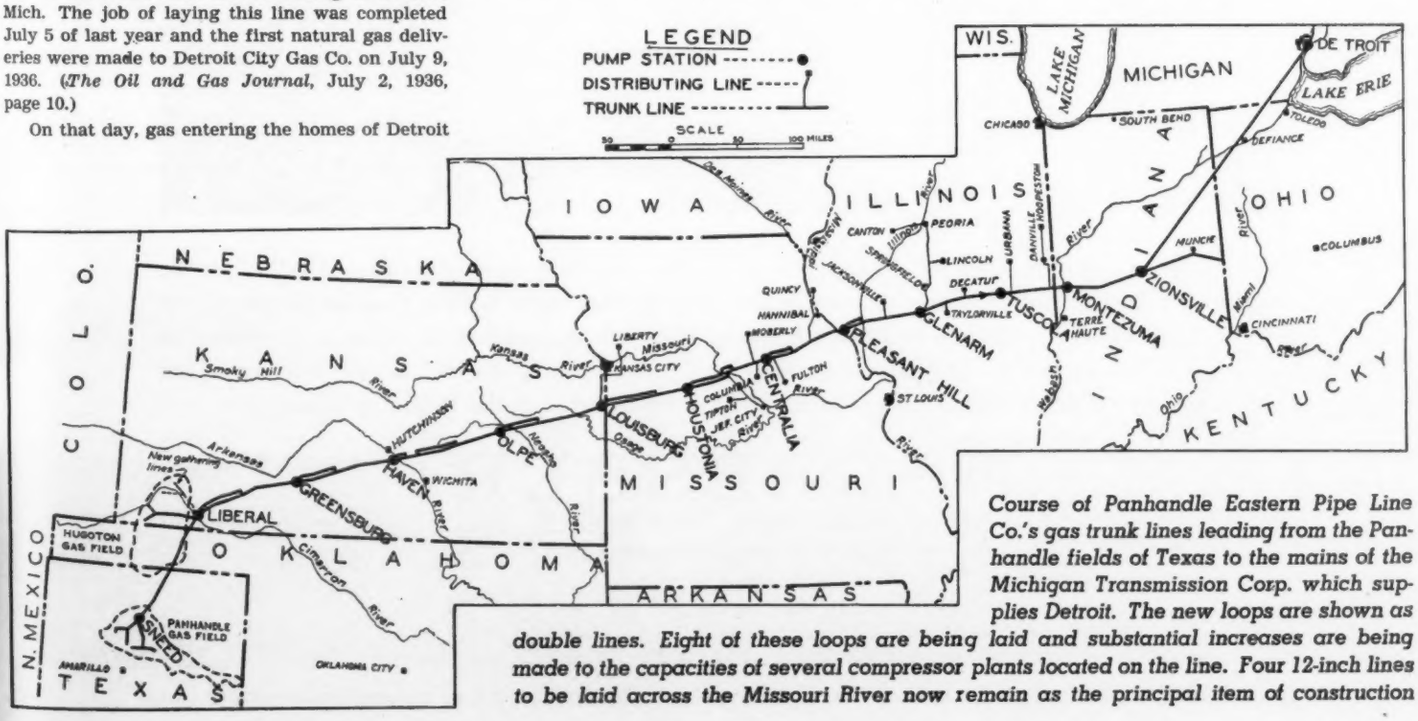
Type of header used on the new state-line metering stations. In this installation six 12-inch lines serve the one 24-inch main line. The gas is metered through the smaller lines

The added load placed on the original pipe lines obviously called for the expansion of their existing facilities, and to accomplish this financial arrangements were made whereby the expansion of all facilities along the line from Texas to Detroit would be provided for through a well-planned construction program extending through 1936 and 1937 into 1938. (*The Oil and Gas Journal*, April 8, 1937, page 27.)

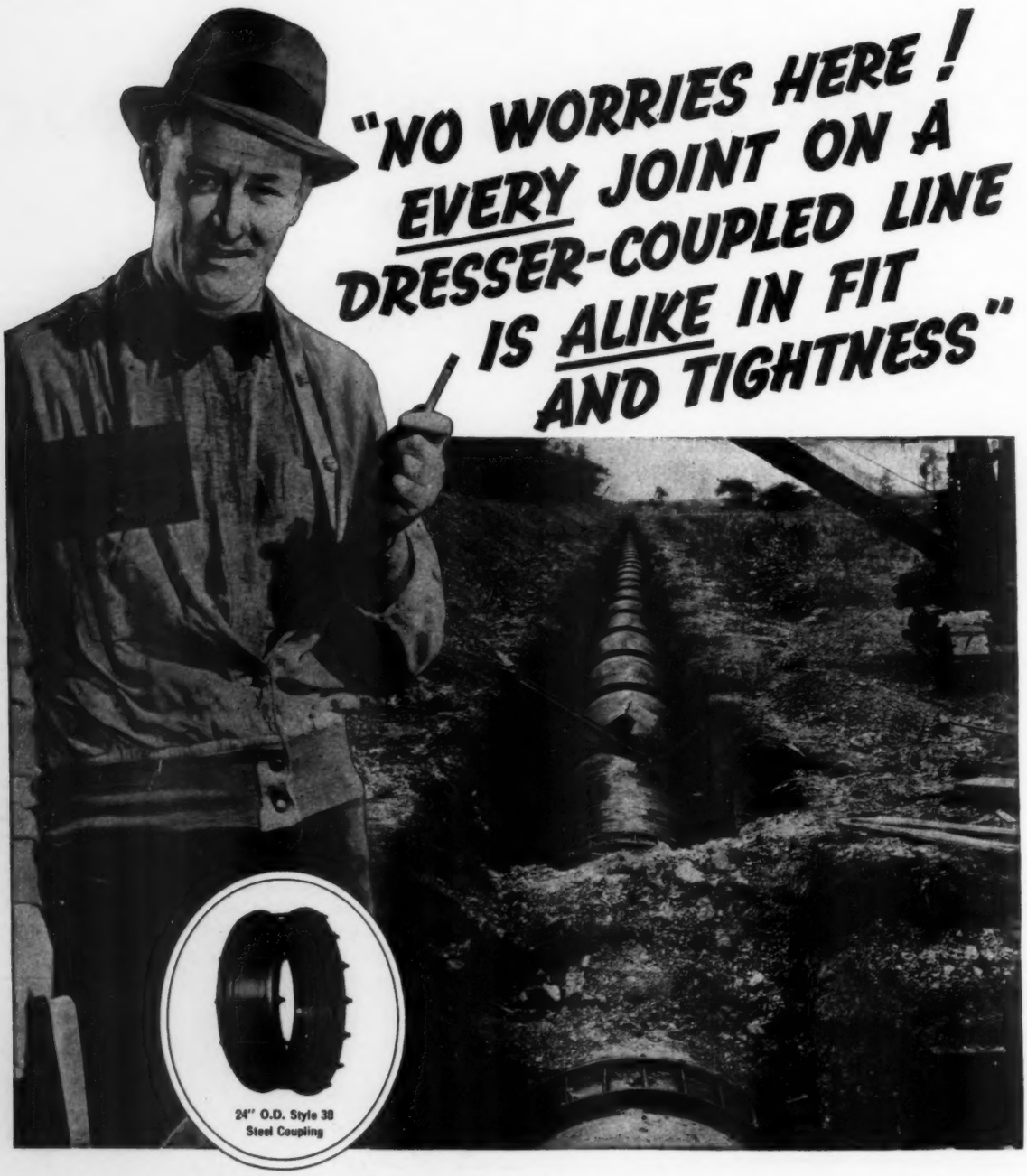
Increase Compressor Capacity

In this program, provisions were made for increasing the compressor capacity along the Panhandle Eastern lines and for laying eight loop sections of pipe line during 1937. In its entirety, this probably represents the largest piece of construction work undertaken by any pipe line company this year. In its application it has involved laying 227 miles of 24-inch, 44 miles of 22-inch, 5.6 miles of double 18-inch and 3.9 miles of single 18-inch pipe line, installed as eight loops in the original system and extending on the discharge side from the respective compressor stations. This involved making four river crossings, the most important of which is that across the Missouri River near Booneville, Mo. Those crossing the Arkansas, Neosho and Lamine are also shown on the accompanying map.

The remainder of the 1937 program called for



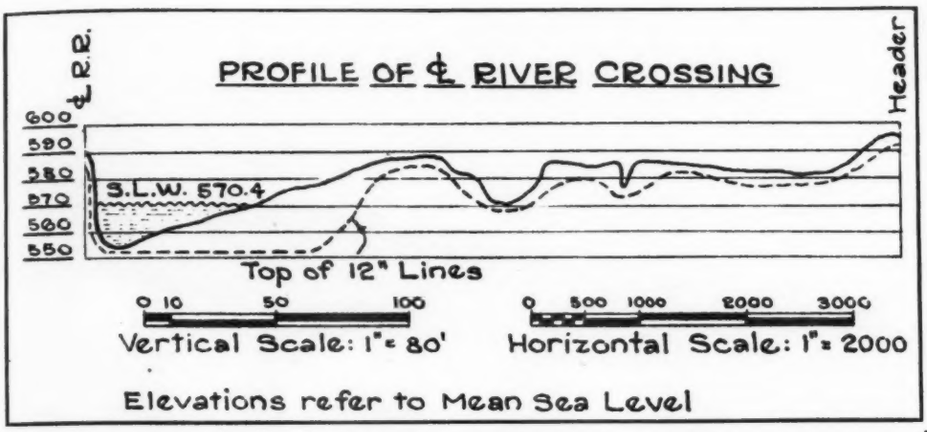
Course of Panhandle Eastern Pipe Line Co.'s gas trunk lines leading from the Panhandle fields of Texas to the mains of the Michigan Transmission Corp. which supplies Detroit. The new loops are shown as double lines. Eight of these loops are being laid and substantial increases are being made to the capacities of several compressor plants located on the line. Four 12-inch lines to be laid across the Missouri River now remain as the principal item of construction



Why be plagued by the uncertainties of field *fabrication*? Let factory precision standards —and fool-proof *assembly*—end your fears about joint performance. Use Dresser Couplings! • Uniform connections are pre-assured by accurate manufacture of all Dresser Coupling parts within *precise* limits. Parts can be assembled in only one way—the "permanently tight" way. Chances for human error in the field are eliminated.

S. R. DRESSER
MFG. COMPANY, BRADFORD, PA.
In Canada: Dresser Mfg. Company, Ltd., 60 Front Street, W., Toronto, Ont.

NOTE TO READER: This is the fifteenth in a series of advertisements dramatizing one engineer's experience with his first Dresser-coupled line. For the complete story, write for Bulletin 351.



Four 12-inch lines are to be laid across the Missouri River near Booneville and these will be laid 18 feet below standard low water level for a distance of 2,000 feet

the erection of a new 3,900-hp. station at Tuscola, Ill., installing additional absorption and dehydration equipment at the Liberal, Kans., natural gasoline plant, and the installation of 25,500-hp. in compressors at existing stations which was divided as follows:

Station location—	Added hp.
Liberal, Kans.	3,000
Greensburg, Kans.	3,900
Haven, Kans.	3,900
Olpe, Kans.	3,900
Louisburg, Kans.	2,000
Houstonia, Mo.	1,300
Centralia, Mo.	2,600
Pleasant Hill, Ill.	3,900
Glenarm, Ill.	1,000
Total	25,500

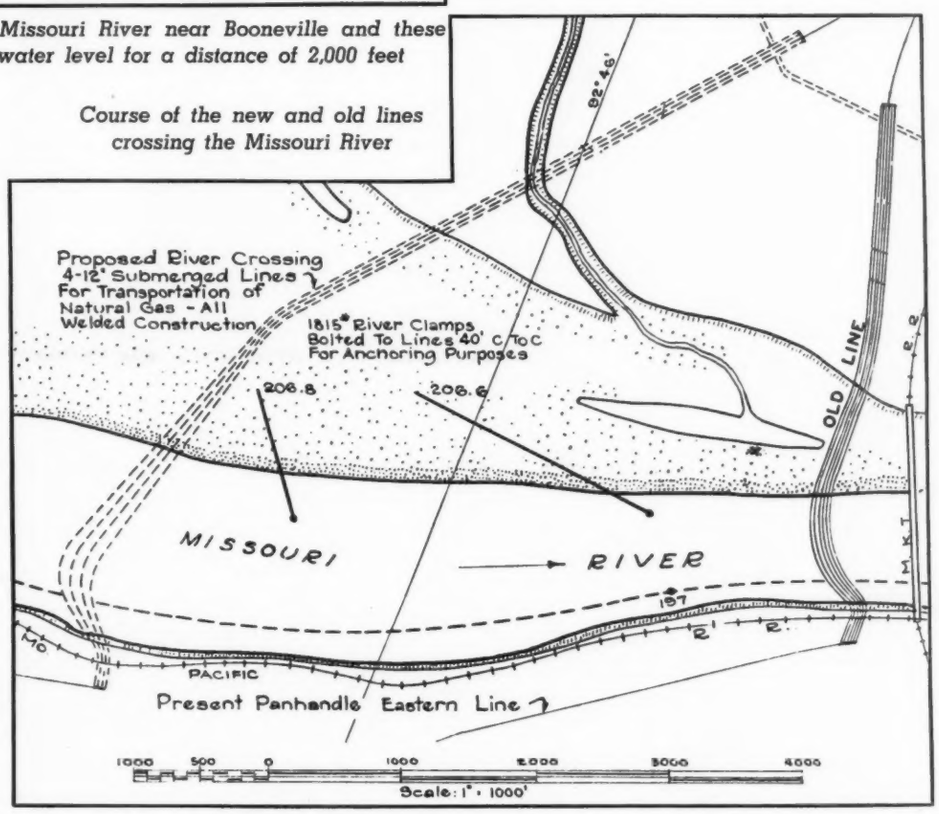
Thus the addition of 25,500 hp. to the old stations, plus the 3,900 hp. contained in the new Tuscola station, will add 29,400 hp. to the line to raise the total from 43,300 to 72,700 hp. This is an increase of 68 per cent in the power available on this system. Cooper-Bessemer and Worthington units comprise the list of units accounting for the increase.

While additions to the compressor plant have been made at the Liberal, Kans., station, a substantial part of the construction work there involved enlarging and improving the gasoline recovery system and the installation of additional calcium chloride dehydration capacity. Before the present work was started, the plant was capable of handling 135,000,000 feet of gas daily, and with the completion of this year's work its capacity will be increased to 200,000,000 feet.

Air Condition Plant

A feature of the Liberal compressor station and others in the "dust bowl" is the use of air-conditioning equipment that not only removes dust particles from the air by filtration but circulates the air within the stations in a manner which permits a slight pressure to be maintained inside the building and thus keeps the infiltration of dust at a minimum. In the winter this system is used to circulate warm air which has first passed over the engine exhaust line casings where sufficient heat is picked up by radiation to keep the main buildings comfortably warm. (*The Oil and Gas Journal*, September 24, 1936, page 65.)

Course of the new and old lines crossing the Missouri River



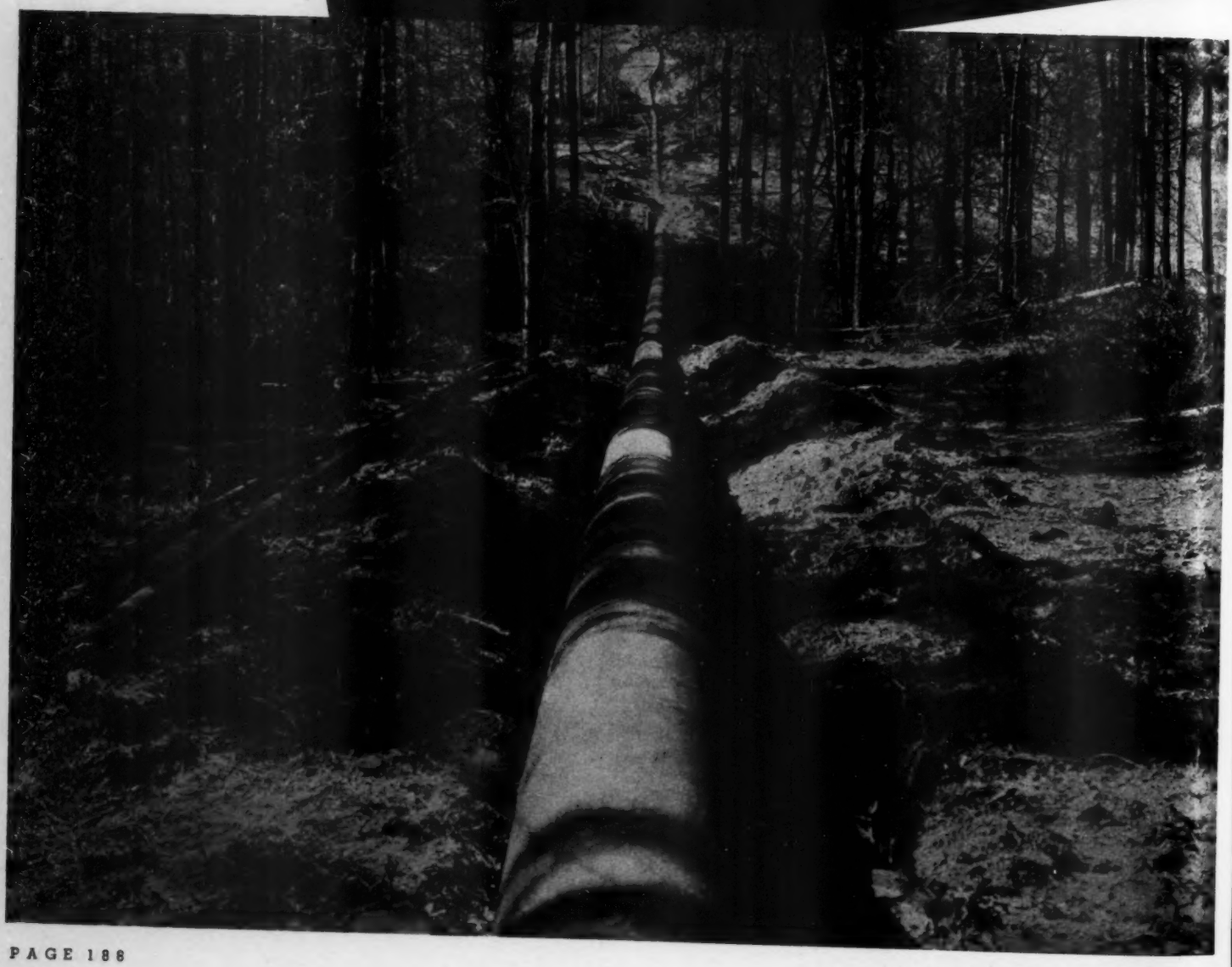
Pipe Line Loops

Mention has been made of the eight loops of pipe line laid as part of the construction program. The location of these loops can be readily recognized by referring to the accompanying map. Briefly stated, approximately 40 miles of 24-inch line was laid out of the Liberal, Kans., station; 34 miles of pipe of the same size out of Greensburg, Kans.; 42 miles out of Haven, Kans.; 35 miles out of Olpe, Kans.; 47 miles out of Louisburg, Kans.; and, 41 miles out of Houstonia, Mo. Of the 22-inch pipe laid, 23 miles lead out of the station at Centralia, Mo., and 19 miles out of Pleasant Hill, Ill., station. In this work pipe was purchased from the National Tube Co. and the A. O. Smith Corp. The pipe has a wall thickness of nine-thirty-seconds inch. In laying the pipe two 40-foot joints were welded together electrically and these joints were then me-

(Continued on Page 190)

Ready to lower wrapped pipe as part of Panhandle Eastern Pipe Line Co.'s looping program now nearing completion

PIPE



LINES

. . . are seldom laid or repaired anywhere in the Mid-Continent, Gulf Coast or Eastern fields without the cooperation of the

FRICK-REID *Supply Corporation*

PITTSBURGH, PA. TULSA, OKLA.

Equipment Suppliers Exclusively . . .
Branch Stores in Old and New Fields

chanically coupled together to form the line. The 24-inch pipe weighed 71.24 pounds per foot and the 22-inch weighed 65.23 pounds per foot.

In the laying of these loops, one important construction item is that of crossing the Missouri River. This involves laying four 12-inch lines in the river bed and to meet war department requirements these lines must be placed at least 18 feet below the standard low-water level for a distance of at least 2,000 feet from the south bank of the river. Exception is made only where solid rock is encountered and there the pipe must be laid in trenches at least 2 feet deep.

Missouri River Crossing

The map depicts the course of the new work in relation to the present crossing which is made up of six 10-inch lines. The start of the new crossing is about 1 mile upstream from the old line.

In preparing the trench for the new crossing considerable blasting will be necessary and equipment has been brought to the location which is capable of drilling 20 holes simultaneously.

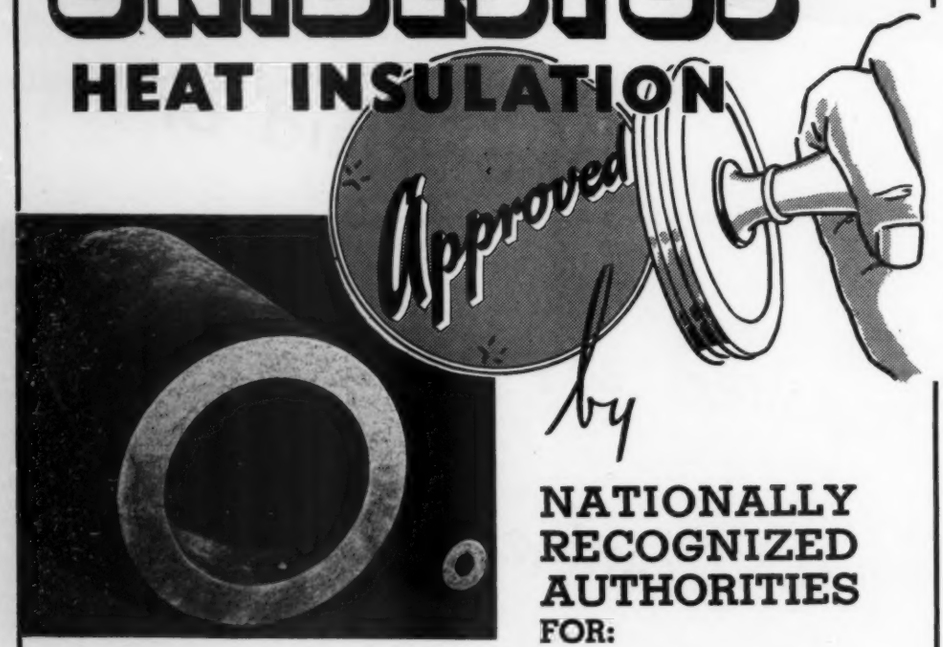
In the new crossing approximately 30,500 feet of pipe will be used. On the approach side of the crossing the header will of course accommodate the 24-inch main line as the feeder line and the four 12-inch lines which cross the river. On the other side, the river header is designed for the four 12-inch lines and two 18-inch lines, only one of which will be extended across the lowlands this year, a distance of 3.89 miles, where it will connect with the original 22-inch line.

Extend Gathering Lines

The one other portion of the 1937 work that is a part of the pipe line expansion program now in progress, is that of laying an extensive gathering system in Grant, Haskell, Stevens and Seward counties in Kansas, composed of approximately 51 miles of 18-inch, 16-inch and 12¾-inch pipe. This will serve to deliver gas produced in these counties to the main line at the Liberal station.

UNIBESTOS

HEAT INSULATION



NATIONALLY RECOGNIZED AUTHORITIES FOR:

Permanently Higher Insulating Efficiency Under Modern High Temperature and Pressure, Vibration and Moisture Conditions. . . .

THE rapidity with which UNIBESTOS has been approved and accepted by many of the country's leading engineers, is convincing evidence of its outstanding contribution to modern insulation practice.

Thorough laboratory tests conducted by such eminent insulation authorities as Prof. J. C. Peebles, Armour Institute of Technology, Frank B. Rowley, Director of Institute of Technology, University of Minnesota and others, prove UNIBESTOS to be a definitely superior high-temperature insulating material. Prominent industrials have specified and purchased it. It is being used regularly in the U. S. Government cruiser and destroyer program. Copies of all tests are available on request.

With its distinctive base of Amosite Asbestos Fibre, Unibestos possesses a highly cellular, fibrous structure, offering new light weight with remarkable strength. Thus, it is proof against vibration, rough handling, heat and moisture. It will not shake down or disintegrate. And even the large 24" section may easily be handled by one man!

These novel physical advantages in a single insulation, combined with low first cost, low application and maintenance costs, provide in Unibestos a new high in insulating value. Write for interesting data. No obligation.

UNION ASBESTOS AND RUBBER CO.
1821-33 So. 54th Avenue, Cicero, Ill.
INSULATIONS — PACKINGS — ASBESTOS TEXTILES — FRICTION MATERIALS

Pipe Line Company Data From Annual Reports

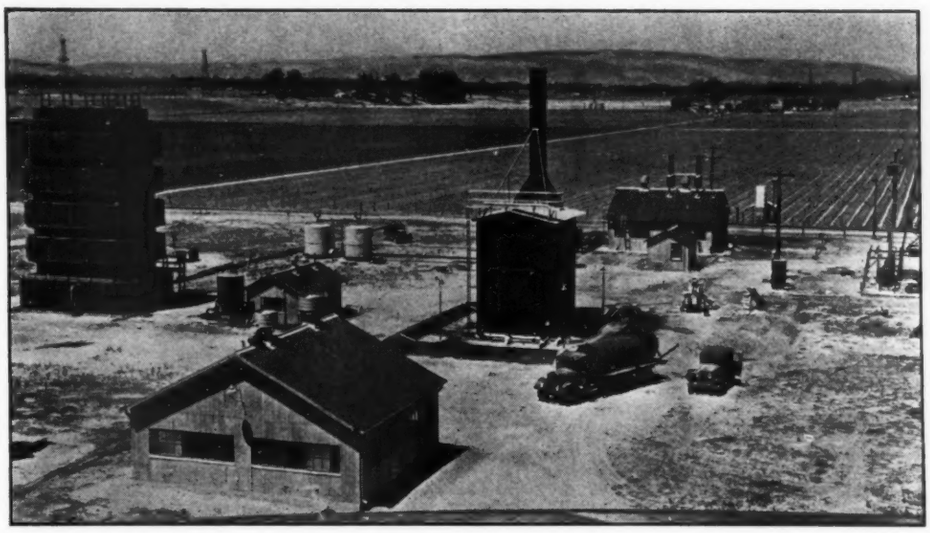
The following data are compiled from annual reports of pipe line companies reporting to the Interstate Commerce Commission for 1935:

Number of companies	53
Miles of line operated:	
Gathering lines	39,380
Trunk lines	52,657
Investment in carrier property	$763,009,274
Other investments	119,070,887
Cash	8,463,211
Material and supplies	8,631,324
Total current assets	46,948,896
Capital stock	297,420,937
Funded debt unmatured	48,916,333
Total current liabilities	40,230,404
Accrued depreciation—carrier property	*396,286,252
Total corporate surplus	59,003,406
Operating revenues	197,368,209
Operating expenses	89,363,921
Pipe line taxes:	
United States government taxes	20,717,656
Other than United States government taxes	7,701,008
Total	28,418,664
Pipe line operating income	79,585,624
Interest on long-term debt	4,075,160
Net income	78,249,400
Dividend appropriations:	
From current income	48,569,830
From surplus	85,097,938
Total	133,667,768
Oil transported (bbls.):	
Originated in line:	
Crude	722,995,200
Refined	43,593,203
Total	766,588,403
Received from connecting lines:	
Crude	281,970,041
Refined	10,282,045
Total	292,252,086
Total terminated on respondent's line	709,501,239
Number of barrel-miles:	
Crude oil (thousands)	†213,798,204
Refined oil (thousands)	‡17,196,273
Employes and their compensation:	
General officers and general office employes:	
Average number	2,049
Compensation	$4,895,599
All other employes:	
Average number	19,466
Compensation	$29,774,625
Total employes:	
Average number	21,515
Compensation	$34,670,224

*Includes $18,468,963 amortization reserve. †Data not available for two companies. ‡Data not available for three companies.

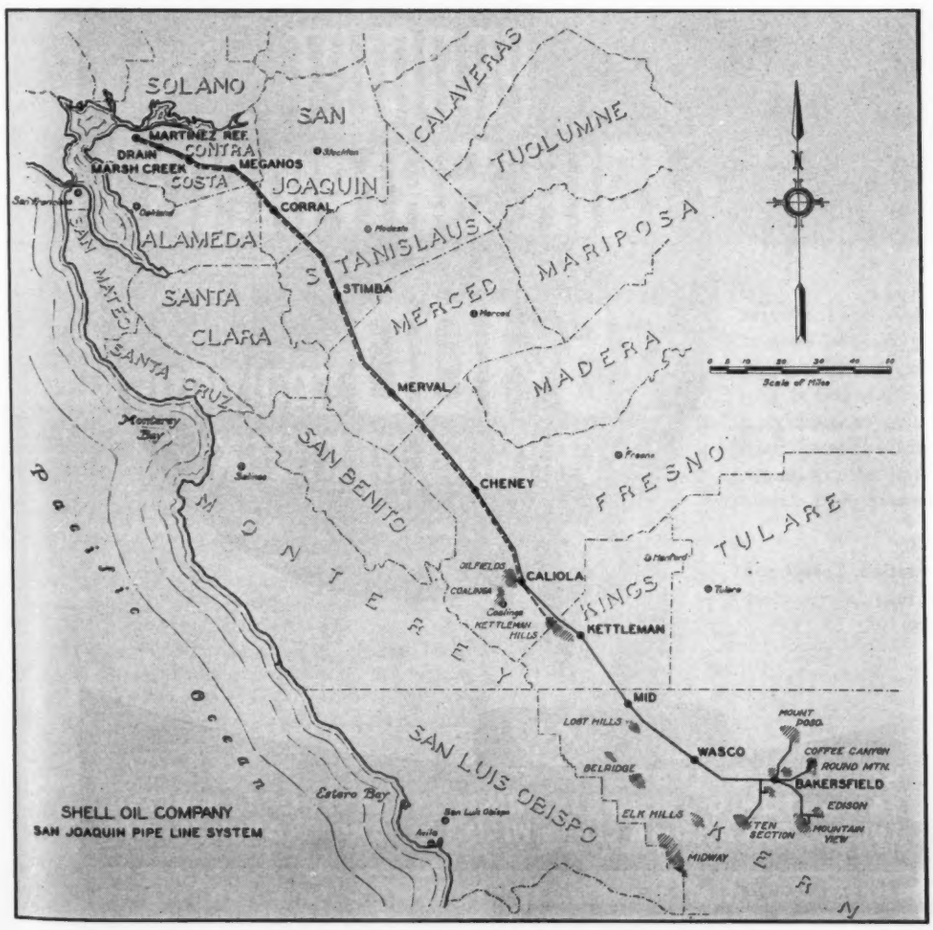
California 1937 Construction Longest in Years

By L. P. STOCKMAN



Santa Maria station, Union Oil Co.

Construction of a 257.98-mile crude oil pipe line by Shell Oil Co. featured pipe line work in California during the past year, and it is interesting to note that this company also laid the first automatic natural gasoline line in California several years ago. Shell's new crude oil line was the longest single pipe line job undertaken in over 20 years and the total cost was slightly in excess of $4,500,000. Standard Oil Co. has laid a greater amount of pipe than this during the past several years but did not construct any single pipe line equal in mileage to the Shell's Bakersfield to Martinez pipe line, which was completed in the remarkable time of 90 days. Shell's original 170-mile Caliola-Martinez line, in contrast with this 90-day record, was started in October, 1914, and completed in August, 1915. The elapsed time for the engineering, design, purchase and delivery of equipment, hauling, erection and construction on the Bakersfield-Martinez pipe line was slightly more than seven months. This is several months shorter than it took to lay the original and much shorter Caliola-Martinez pipe line. Including the main pipe line and laterals, a total of 312.16 miles of new pipe was laid in the new Bakersfield-Martinez pipe line. Shell's main line consists of 189.54 miles of 10-inch pipe and 68.44 miles of 12-inch with a 12.29-mile lateral of 8-inch from Bakersfield tank farm to the Mount Poso field, 9.28 miles of 6- and 8-inch lateral to the Round Mountain field, 17.21 miles of 8-inch lateral to the Ten Section field and 20.6 miles of 6-inch laterals to the Mountain View and Edison fields.

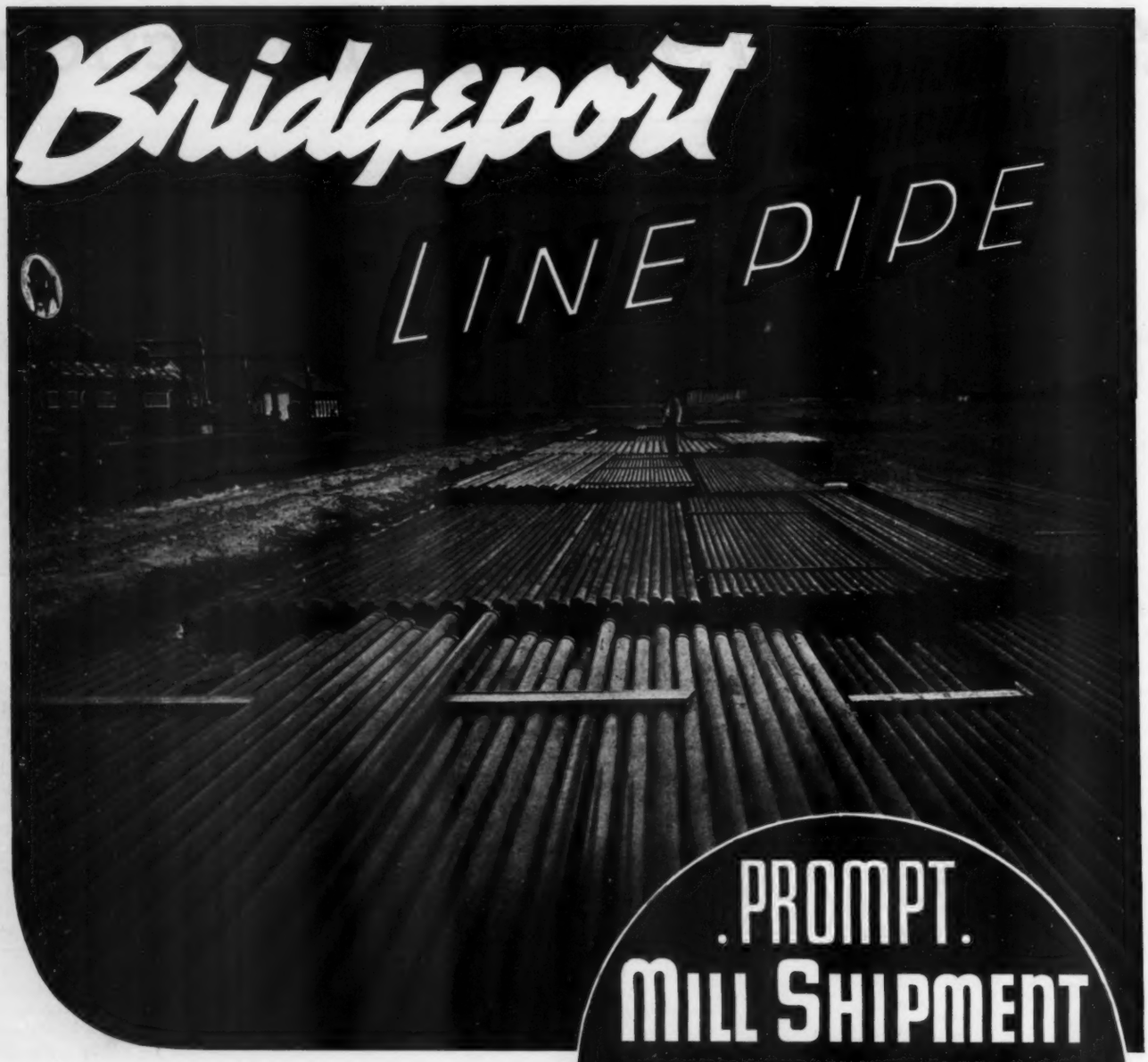


This new pipe line was constructed as a complete unit but was designed to work in conjunction with the original line built in 1914 and which has given excellent service during the interim since installation. The company's old pipe line extending from Caliola in Fresno County to Martinez in Contra Costa County consists of 140 miles of 8-inch and 30 miles of 10-inch. Discovery of commercial production in the Ten Section field of Kern County and increased production in the Mount Poso, Round Mountain, Edison and Mountain View fields made it obligatory for Shell to construct a new pipe line to its Martinez refinery on San Francisco Bay as it had no pipe line facilities south of Coalinga and the existing line northward from Caliola was already taxed to capacity. In addition to laying this new pipe line, the company erected eight 68,000-bbl. steel tanks at its Bakersfield tank farm and constructed four new pump stations between the tank farm and Caliola station and modernized the existing stations along the original route northward to Martinez refinery. The Waso, Mid and Kettleman stations are equipped with two 15,000-bbl. A.P.I. steel service tanks, two 1,000-bbl. steel water storage tanks and two 144-bbl. steel fuel oil storage tanks. At the Bakersfield tank farm, in addition to the large oil storage tanks, the company erected two 144-bbl. steel fuel oil storage tanks and two 1,500-bbl. steel water tanks. At Caliola pump station near Coalinga, the company added two 68,000-bbl. steel tanks to the existing storage at that point, which consisted of seventeen 55,000-bbl. steel tanks erected in 1914.

Operating Practice

Shell's pipe line was electrically welded by H. C. Price, Inc., of Bartlesville, Okla., and the crews made the first weld on July 22, 1936, and the last on October 21 at a point near Meganos pump station in Contra Costa County. Upon completion of the last welding, the line, including all laterals, was flushed thoroughly with water previously

Bridgeport LINE PIPE



. PROMPT. MILL SHIPMENT

75 to 100 CARLOADS CARRIED IN STOCK

For oil gathering lines to producing wells, gas and water service lines to drilling wells, and all service lines of a more or less temporary nature, 2-in., 3-in., and 4-in. used Line Pipe may be used advantageously and at considerable saving in cost. We specialize in supplying this material from large and conveniently located yard stocks; as well as in supplying new lines of any length or size direct from the mills, or from our yard stocks when quick delivery is wanted.

For quick information, Telephone our nearest representative, store or service office.

The BRIDGEPORT MACHINE COMPANY
Manufacturers and Distributors of
OIL FIELD EQUIPMENT
Factory and General Offices
WICHITA, KANSAS

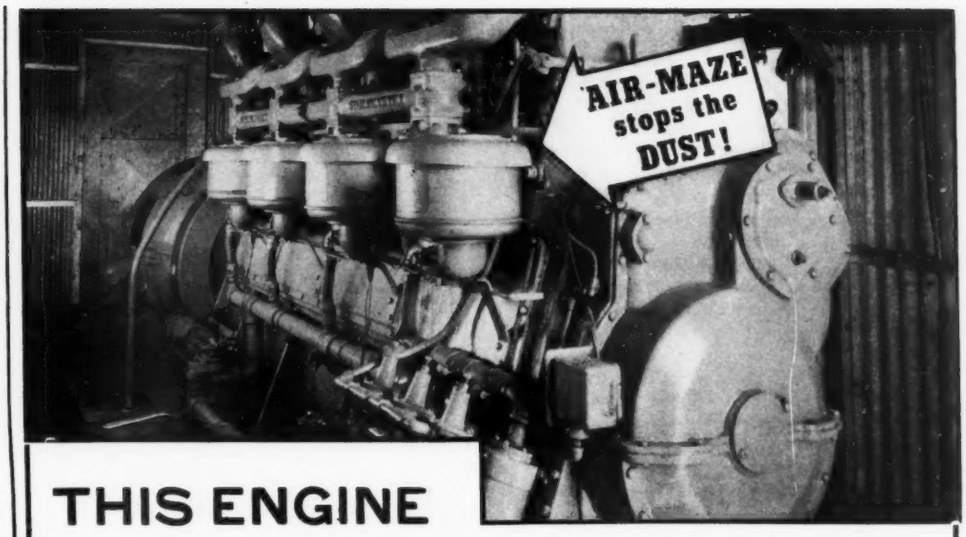
HOUSTON . DALLAS .
SAN ANTONIO . CORPUS CHRISTI . SHREVEPORT . ODESSA
TULSA . OKLAHOMA CITY . WICHITA . AND BRANCH STORES

accumulated in the Bakersfield tank farm and pressure tested by employing the main line pumps. The first delivery of oil was made into the line from Bakersfield tank farm on December 20 and it required a little over one week to reach Martinez. Special attention was necessary in designing this new line due to the necessity of transporting both light and heavy oil although the high viscous oils were the dominating factors. This was accomplished by heating the heavy viscous oil, resulting in greater flexibility of operation and maximum efficiency of operation, as it is an axiom of good pipe line practice to keep oil moving in the line under a full load. The heavy viscous oil is heated at each station to a temperature of 180° F. and the pump pressures of 1,000 pounds move it at the rate of 1,200 bbls. per hour. By heating the oil and using the two sizes of pipe, Shell saved about $250,000, as this plan permitted the placing of pump stations 15 miles apart, making it possible to omit two additional pump stations.

In order to compensate for loss in temperature and corresponding increase in viscosity, Shell Oil Co. used 10-inch pipe on the discharge side of each pump station and increased the diameter to 12 inches about two-thirds of the distance to the next station. The 10-inch pipe on the discharge side of the pump for the first 4 miles weighs 34.83 pounds per foot but this is lightened to 31.2 pounds per foot to its junction with the 12-inch, which weighs 37.45 pounds per foot. This practice was uniform between all stations on the line and has been found advantageous. Expansion joints were installed on the discharge side of all pump stations to protect the pump manifold and yard piping against any undue strain from expansion or contraction. All pipe was beveled for welding at an angle of 37.5 degrees and each weld was made up in three beads. The usual soap and water leak test was made by applying 180 pounds of compressed air every 3 to 5 miles. Slack was provided in the 6-, 8- and 10-inch sizes of the line by use of the vertical slack-wallop and in the 12-inch by horizontal wallops. Four crews were started by the contractor in building this line, one working along the stretch from Bakersfield to Caliola, the second working from Caliola to Meganos, the third from Meganos to Martinez and the last working on the laterals extending out from Bakersfield to adjacent fields in the southern part of the San Joaquin Basin. The best day's run of any crew was 5.25 miles of 10-inch line completely tied in, and the average for all four crews was 3.51 miles of completed line daily. Shell's original Caliola-Martinez line was a screw job and the general daily average was 4,196 feet. The best day's record, which incidentally was done by machine, was 5,700 feet of 10-inch, and on three different days 5,600 feet were put together. On the 8-inch, the best day's work was 8,700 feet, and 8,000 feet was screwed on two other days.

Pump Stations

The four new pump stations, Bakersfield, Wasco, Mid and Kettleman, erected on the Bakersfield-Caliola section of the Shell's pipe line are in most respects identical and modern in very detail. Each of these stations is equipped with three Ingersoll-Rand four-stage 6-inch centrifugal pumps driven by a 350-hp. Moore steam turbine. Steam is supplied by three 237.5-hp. Heine type boilers and are equipped with superheaters operating at 200 pounds pressure and 100 degrees superheat. Each boiler is equipped with gas and oil burners and a single smokestack 54 inches in diameter by 130 feet high. Auxiliary equipment consists of two Ingersoll-Rand two-stage, 80 gallons per minute, 275-pound pressure, centrifugal boiler feed pumps and two 80 gallons per minute, 70-foot head, feed water heater supply pumps mounted on a common base together with their steam turbine drivers. These operate in conjunction with an Elliott deaerating feed water heater having a heating capacity of 30,000 pounds of water per hour from 140°



THIS ENGINE HAS A BRIGHT FUTURE!

With a battery of four Air-Maze filters protecting the air intakes of this 400 H.P. oil field engine, its continuous operating efficiency is actually insured. No dust and grit can enter to prematurely wear moving parts, cause unnecessary overhauls, and impair performance.

Your power engines and air compressors deserve the 6 point protection provided by Air-Maze. There is a type and size of filter for every application. Write today for the new 1937 catalog—outline your air cleaning problems.

We will gladly offer recommendations.

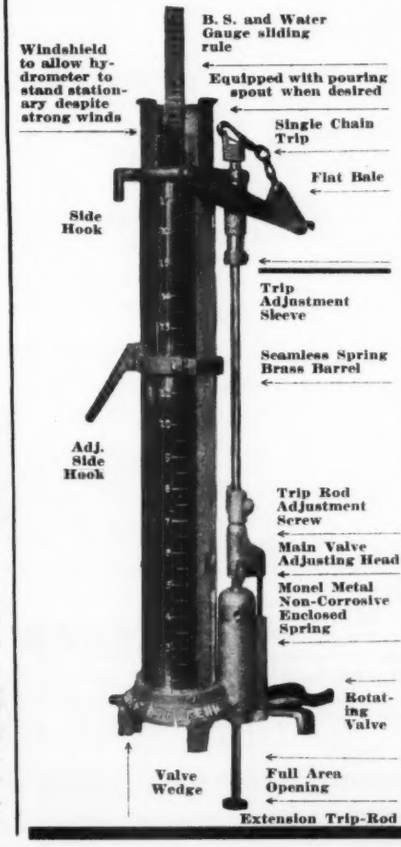
Air-Maze is in the 1937 Composite Catalog.

AIR-MAZE CORPORATION
818 HURON RD. CLEVELAND, OHIO

AIR-MAZE
INDUSTRIAL
AIR FILTERS

GAUGERS

designed this equipment!



New Improved Oil Thief

While the Tulsa Oil Thief has been in use now for several years, it has constantly been improved. The latest improvements include an adjustable B.S. and Water Gauge to allow measuring from the top of the Thief to the top of the B.S. or water. This fits into a slide on the windshield and collapses inside the Thief. A new windshield protects hydrometer stem from air currents. It is also collapsible. A new adjustable hinged side hook facilitates gauging on oil tankers, tank cars, and in tanks with wide hatch rims.

New Tulsa Gauging Reel

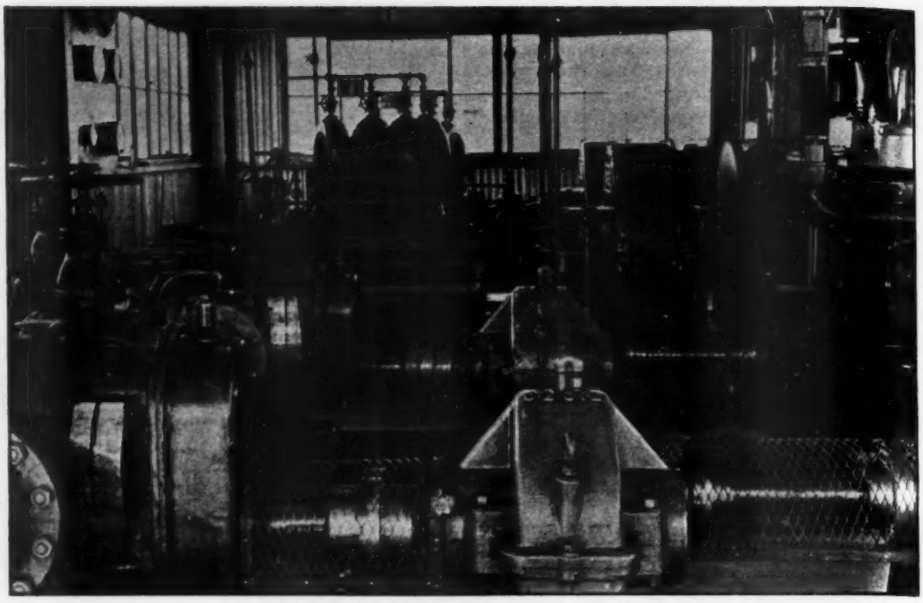
Illustration shows three principal features: (1) hand-grip directly over plumb bob, (2) trigger control, giving positive brake, (3) wiping block, which prevents lariating of tape, kinking, and deterioration.

Full information and illustrated folders will be sent on request.

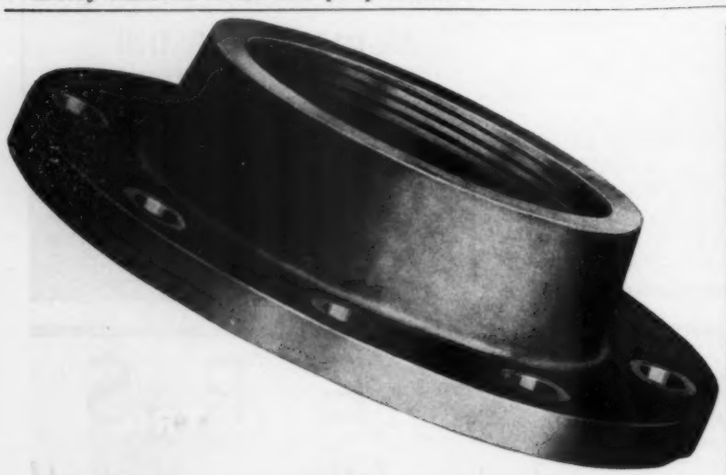
W. L. WALKER COMPANY
Distributors
1001 South Main Tulsa, Oklahoma

to 219° F. Feed water regulators control boiler feed.

Each new pump station has a 7 by 5 by 10-inch duplex steam driven pump for general utility purposes and a 2½-inch centrifugal pump with a capacity of 300 gallons per minute against total pressure of 150 pounds, driven by a General Electric 47-hp. steam turbine as a fire pump. A fuel oil burner pump is provided to supply the boilers when operating on oil. Pumping equipment along the new stretch from Bakersfield to Caliola is housed in corrugated iron buildings 59 feet wide and 100 feet long and the boilers and auxiliary equipment are separated from the main pump room by a fire wall. From the operating office, containing the gauges and operating instruments, a clear vision is possible of both areas. The heaters used to heat high viscous oil are located outside of each pump station and during periods when a steam surplus occurs, as when pumping light crude oil which does not require heating, the entire plant can be operated by steam from the heaters. During this period an air pump capable of maintaining a high vacuum on the main oil heaters and an automatic electrically driven condensate pump are used. At the Wasco, Mid and Kettleman stations, no floating tanks are used. The incoming stream of oil is directly connected to the main pump suction so



Union Oil Co. Pump station at Summit



forged Steel flanges

Kropp Forged Steel Flanges are approved by oil men everywhere because they are "tough"—"tougher" than flanges of other materials or made by other methods—"tough" enough to withstand extreme internal pressures, and possessing ample tensile and torsional strength to resist the stresses set up by tightly drawn bolts, by temperature changes and pipe shifting—they expand evenly with the pipe.

Kropp Companion Flanges are not ordinary forgings—they are forged from a solid piece of special formula steel hammered endwise to secure a complete upsetting of the grain structure, and to eliminate blowholes, sponginess and cracks—of extreme importance at the vital point where hub and flange meet. Bolt holes are spot-faced and back-faced for easy seating of nuts and bolts.

Kropp Boiler Flanges, bent in forging, offer a perfect sweep—they fit snugly—a quality uncommon in boiler flanges bent after forging.

We stock thousands of Companion Flanges in all sizes, 150 lb., 300 lb., 400 lb., and 600 lb. American Standard, and all sizes and types of Boiler Flanges, for immediate shipment. Threaded Flanges have sharp, clean threads; other types have smooth interior hub walls to speed up piping and welding. Dies are on hand for the quick forging of discontinued sizes.

SHIPPED from STOCK!

Companion Flanges All Sizes Threaded, Slip-on, Van Stone, Welding Neck, Blind

Write for Stock Flange List No. 125 today!

KROPP FORGE COMPANY
5309 W. Roosevelt Road, Chicago, Illinois

Sales offices in Tulsa, Dallas, Houston, Pittsburgh and New York. Representatives at Birmingham, Cincinnati, Cleveland, Denver, Detroit, Indianapolis, Milwaukee, San Francisco, St. Louis and St. Paul.

"OILWELL" Twin-Cylinder Steam Engine

for crank pin bearings, eccentric straps, etc.

LAMINUM SHIMS provide accurate adjustments . . . Right at the machine! Simply p-e-e-l one or more .003" laminations at a time from the solid brass shim. Production delays avoided . . . No filing, no grinding . . . • The same economy, the same precision in factory assembly and in every service adjustment for the life of the bearings.

LAMINATED SHIM CO., INC., 22-54 44th Ave., Long Island City, N.Y.
Cleveland Detroit Milwaukee

814

LAMINUM
Precision adjustment SHIMS

Renew Your Subscription Promptly

arranged that the oil may be diverted directly to the pump without passing through the heaters. The main pump steam turbine are equipped with pressure governors so regulated that a back pressure is maintained on the oil heaters or suction sufficient to insure flooded suction conditions and automatic regulation of pump output in step with the upstream station. Only the Bakersfield pump station is manually controlled. The main pumping equipment at stations on the old Caliola-Martinez pipe line consisted of a 26 and 42 by 36 cross compound Allis Corliss engine direct connected by cross yokes and side rods to a four-plunger 6½ by 36 cast steel oil line pump and this equipment was left in place upon modernization and are being used as standby units.

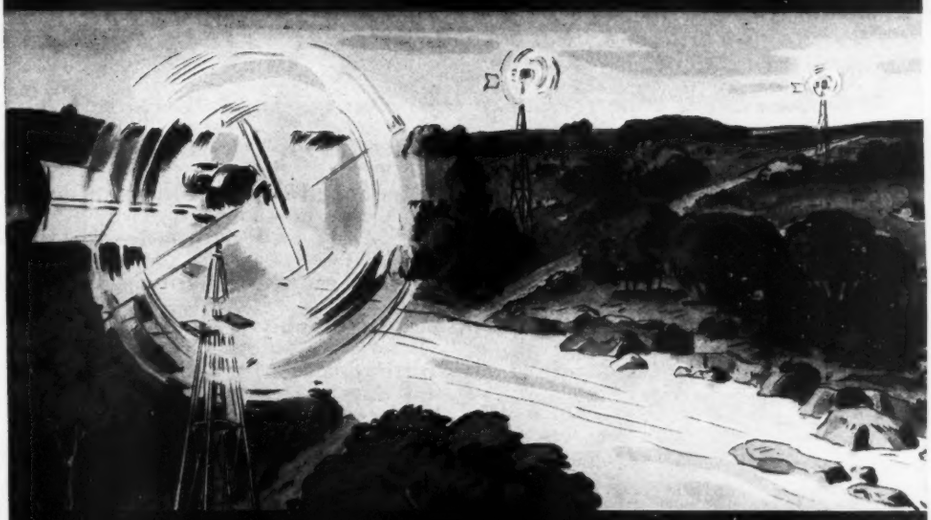
Other Crude Lines

Union Oil Co. connected the Santa Maria Valley field with its Santa Maria pipe line several months ago. but because of proximity of the new productive area, only 2¼ miles of new pipe line was required. The company did, however, erect two 40,000-bbl. steel tanks and constructed a new heating and pumping plant in the Santa Maria Valley field. A 16-inch line connects these tanks to the suction of the first stage pumps which discharge at 65 pounds pressure into two lines which split the stream. One stream goes directly to the suction of the main line centrifugal pumps while the other passes through the coils of a direct fired heater, where it is heated to 270° F. Upon emerging from the heater, the hot stream is split, one part returning to the storage tanks to facilitate flow of oil from the tanks and the other part goes to the suction of the main line centrifugal pumps where it mixes with the cold stream. In this way the main line pumps receive their charge at an approximate temperature of 170° F. and a pressure of 65 pounds. The centrifugal pumps are driven by vertical 300-hp., eight-cylinder, four-cycle natural gas engines. From the new pump station, the crude passes through a lateral which connects with the company's 30-mile Santa Maria pipe line extending from the Orcutt field to Port San Luis, where the marine loading terminal is located. In order to facilitate movement of the oil, a booster station similar to the Santa Maria station was erected at Summitt, a midway point on the line. This line is being operated on a batch basis in order to avoid mixing crude oil from Santa Maria Valley with other crude produced in the area. Santa Maria Valley crude can be handled satisfactorily in tankers with the steam coils customarily used in as much as it is not pumped any great distance upon unloading. These steam coils heat the cargo to approximately 110° F., which is sufficient to overcome the viscous nature of the oil. One cargo of Santa Maria Valley crude oil was shipped to Belgium in June of the present year and a similar cargo recently moved to the East Coast for domestic consumption. In addition to constructing the crude oil line in the Santa Maria Valley field, Union Oil Co. laid 6 miles of natural gas line to the Orcutt absorption plant, where it is processed. The dry gas line, which follows the approximate route of the Santa Maria crude oil line, was tapped and some of the dry gas is returned to Santa Maria field for drilling operations and pump station operation.

General Petroleum Corp., discoverer of the Wilmington field of Los Angeles Basin, had several crude oil pipe lines almost within throwing distance of its discovery well at Wilmington and consequently did not find it necessary to build any new extensive facilities. Due to the extreme corrosive nature of the soil in the Wilmington field, all gathering lines are laid on the surface and usually given a coat of aluminum paint or other protective solution. El Segundo is another field where only a small amount of pipe line was required. Standard Oil Co.'s El Segundo refinery is located within the field and Richfield Oil Co. had

(Continued on Page 210)

CATHODIC PROTECTION FOR PIPE LINES AT *Lower Cost!*



WINCHARGER

REG. U.S. PAT. OFF.

WIND-ELECTRIC EQUIPMENT

CUTS PIPE LINE MAINTENANCE COSTS

REDUCE pipe line repair costs! End damaging corrosion! Prevent costly leakage! Give your pipe lines *permanent* cathodic protection with genuine Wincharger wind-electric equipment. Let FREE WIND POWER generate all the electric current needed to provide lasting insurance against the ravages of corrosion.

Extremely low initial cost! Even lower operating cost! Actual operation records show maintenance costs as low as $7.62 per mile per year on 8″ line, and the cost of Wincharger Cathodic Protection Equipment is but a fraction of the usual cost of reconditioning.

Standard production Wincharger units are available with a normal output of 35 amperes. These units take full advantage of the lowest wind velocities, automatically govern in all winds, and require little or no attention in operation. Larger units built to your specifications at standard production prices. Wincharger is the "World's Largest Manufacturer of Wind-Electric Equipment"—produces thousands of wind-electric plants for all purposes—and is best able to serve you and save you real money on your equipment.

WRITE NOW FOR DETAILS

Ask for complete information on standard production Wincharger Cathodic Protection Units, or investigate the facilities of the organization for producing wind-electric units to meet your specifications and requirements for pipe line protection.

WINCHARGER CORPORATION

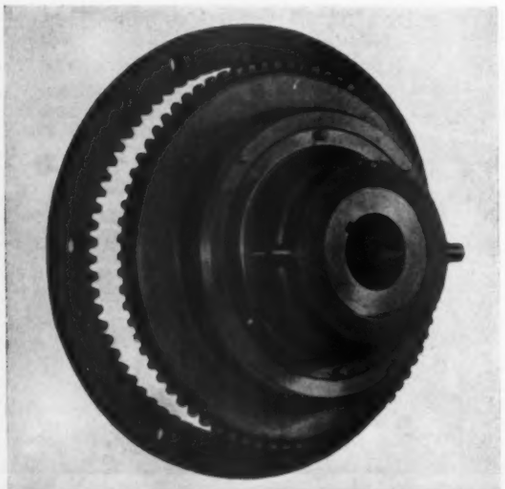
World's Largest Makers of Wind-Electric Equipment

SIOUX CITY IOWA

More TWIN DISC CLUTCHES ARE IN USE IN OIL FIELD SERVICE *than all other makes combined*

In oil field service *it is performance that counts.* To the experienced oil field operator Twin Disc Clutches and Power Take-Off Units stand for greater reliability in continuous operation . . . with flexibility and power control. That's *why* regardless of who makes the engine, or who builds the rig, you will invariably find that Twin Disc is standard equipment.

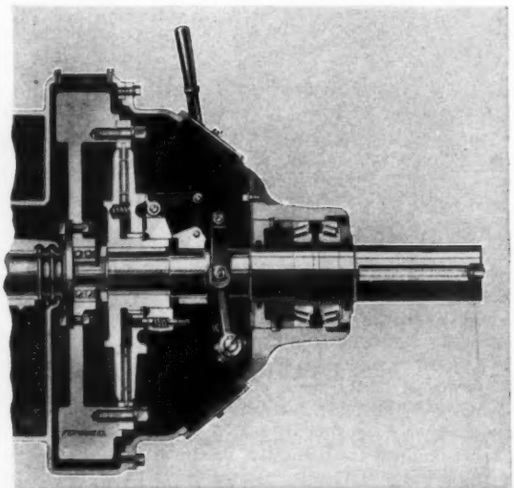
Because twelve years' extensive experience in the oil fields and an intimate knowledge of the industry's requirements have enabled Twin Disc engineers to design clutches and power take-offs that are successfully standing up under the most grueling conditions. *Write for specific recommendations. Engineering-data on request.*



TWIN DISC MODEL "E" SINGLE PLATE CLUTCH

Twin Disc Model "E" Clutches incorporate the latest features in clutch design and provide greatest possible ruggedness. Over-all dimensions are held to a minimum to conserve installation room. Maximum bores are large enough to accommodate oversize shafts. Enclosed feature permits operation in the open without special housings or guards. Needle bearings at pivot points of clutch levers, and hardened and ground parts in the engaging mechanism, assure easy engaging action. Available in single and two plate assemblies, from 14″ to 42″ in diameter; sizes suitable for a range of from 13 to 280 hp. per 100 rpm.

Write for Bulletin No. 108.



TWIN DISC POWER TAKE-OFF SECTIONAL VIEW

The use of high speed multi-cylinder engines in oil well pumping service demands a self-contained power take-off unit as a link in the drive between engine and pumping rig—for efficient starting . . . easy picking up of the load . . . and satisfactory application of pulley or V-belt drive. Complete clutch and power take-off assembly, mounted in rigid, cast iron housing, constitutes a self-contained unit. All anti-friction bearings are selected with liberal safety factors to insure long life. Twin Disc Power Take-Offs are applicable to industrial engines having S.A.E. flywheel housing dimensions.

Write for Bulletin No. 105.

TWIN DISC CLUTCH COMPANY
1328 Racine St. Racine, Wis.

TWIN DISC CLUTCHES

SALES AND SERVICE OFFICE
310 E. 4th Street, TULSA, OKLA.

QUICKER, MORE POSITIVE CONTROL, EASIER OPERATION, LOW UPKEEP, CONTINUOUS SERVICE

New Lines Built in Southwest Texas and Others Planned

By GEORGE WEBER

The increasing importance of Corpus Christi, Tex., as a crude shipping port is a matter of national interest in the oil industry. With constant additions to terminal storage and extension of crude carriers into the area, the focal point for crude produced in Southwest Texas becomes monthly more clearly defined. Recent developments enhancing the city's position are among the most widespread in its history.

Upon completion of the new 76-mile Barnsdall pipe line to Corpus Christi, announcement was recently made of two other trunk lines to radiate from the district and include additional fields in the area tributary to the Nueces navigation district. The Duval Pipe Line Co. has surveyed right of way for a 68-mile line to the North Sweden field of Duval County. Interests affiliated with the Crude Oil Pipe Line Co. are completing plans for another trunk line to serve recently developed fields of the Government Wells district. In addition to these major projects, short extensions, loops and booster stations are augmenting facilities of existing systems. In themselves minor developments, the latter improvements constitute together an important factor in the movement of petroleum to the Corpus Christi area.

The growth of the crude traffic in Corpus Christi is mainly attributable to the rapid development of new production in Southwest Texas fields. Continued exploration and drilling programs in the section point to future increases in crude movement from the immediate area. The future of the port's activity, however, is not contingent on the finding of more production in Southwest Texas alone, for it now offers facilities to attract the terminals of future large trunk lines which might be laid from West Texas to New Mexico.

A major oil company is reliably reported considering the construction of a long pipe line terminating in the vicinity of the port, where a refinery may be erected. Also, a British syndicate is showing considerable interest in the area, and a pipe line from Odessa in West Texas may be laid to Corpus Christi to move crude for export shipment.

Crude Shipments Up

Shipments of crude and refined products from the Nueces navigation district, which embraces Corpus Christi, Ingleside and Harbor Island, totaled over 40,000,000 bbls. during the first seven months of 1937. As additional crude moves to tidewater at these points, through lines now under construction, the rate may swell to constitute a record of 75,000,000 bbls. for the year 1937.

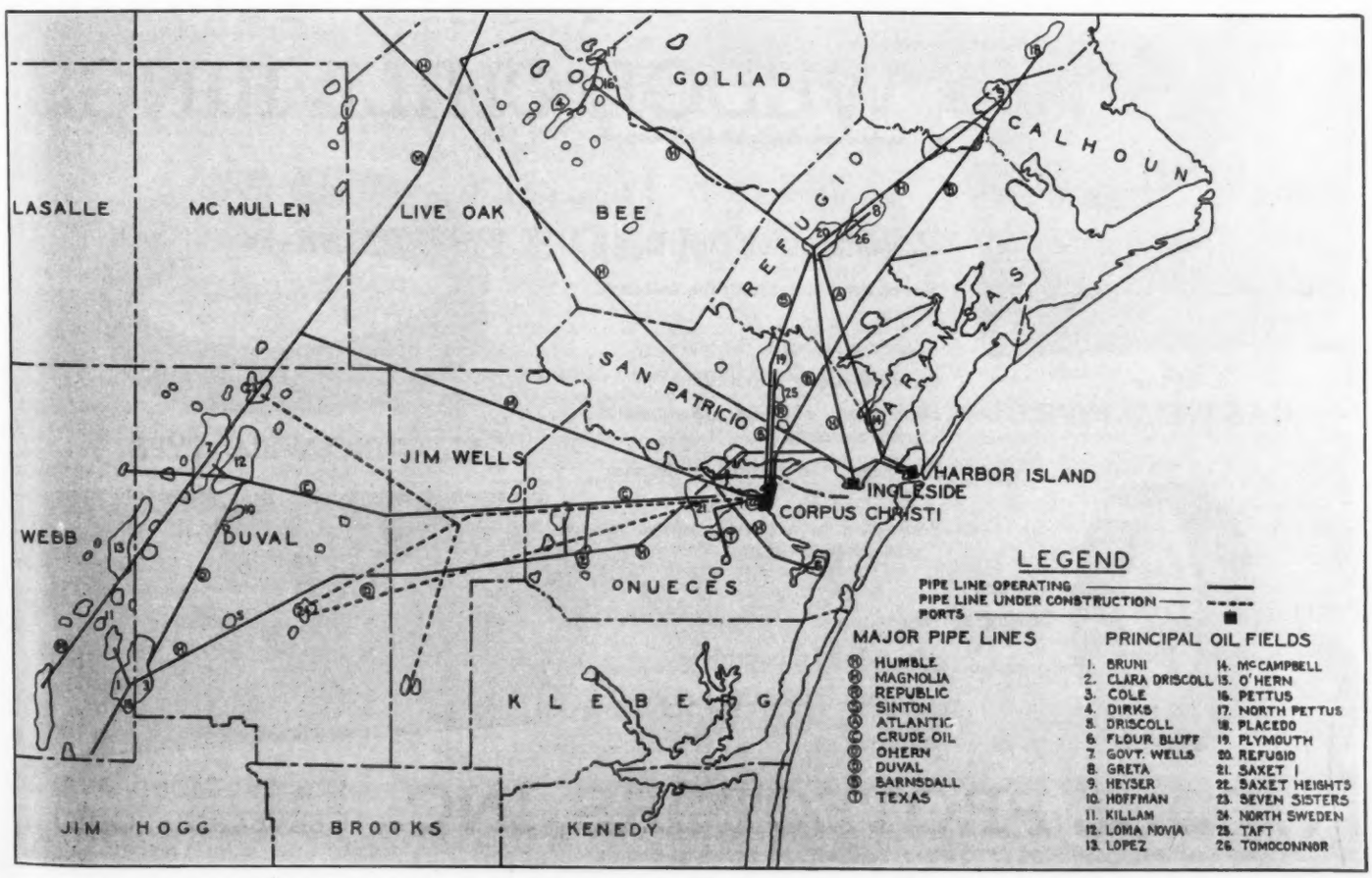
The bulk of the crude cargoes is lifted at Harbor Island, where the Humble Oil & Refining Co. and the Atlantic Pipe Line Co. maintain terminals and tank farms. Harbor Island ships more crude than any other single port in the world.

Pipe Line Projects

An announcement of major importance to Corpus Christi was recently made by the E. L. Buckley interests of San Antonio. It concerns plans for a second trunk pipe line to be laid to the Government Wells area of Duval County, the establishment of a new terminal and tank farm in the environs of Corpus Christi, and the possible erection of a refinery.

The new line will be laid to complement the Crude Oil Pipe Line Co. Duval County trunk to the coast, which after one and one-half years of operation is already overtaxed by increased connections.

Plans for the new pipe line are nearing completion, and actual work is expected to commence within 15 days. Although definite right of way has not yet been made public, and all contracts are



not awarded, it is known the line will serve the Seven Sisters, North Sweden, West Premont and other fields of the general area. A trunk will be laid to the Corpus Christi terminal from Alice, in central Jim Wells County. From that point, radial spurs will reach the above mentioned fields and possibly some of the pools already connected by the Crude Oil line.

The main Alice-Corpus Christi unit will approximate 41.5 miles, and the Seven Sisters, North Sweden and West Premont fields are 33, 23.5 and 24.5 miles respectively from Alice, making total mileage of the proposed line in excess of 122 miles.

Facilities Needed

Operators of the Crude Oil line, which was completed early in 1936, find their present facilities inadequate to care for the variety and volume of crude to be moved to tidewater. Three gravities of oil are now batched in the line. They range from 21 gravity Government Wells crude to 29 gravity Bruni crude. In addition, Clara Driscoll production is added to the line at the field connection near Corpus Christi. The difficulty in handling any additional types of crudes makes further increase of the present pipe line's capacity inadvisable. The new line, which may parallel the original one along much of its right of way, will provide for handling increased volumes of crude, at the same time, allowing for the batching of additional types to Corpus Christi.

For a terminal to the new line, the company will seek a new location in the Corpus Christi area. The present terminal, located on the north side of the main turning basin, does not offer the facilities for expansion, which the company believes will be necessary in the future. Accordingly, a site will be chosen, probably on the bluff west of the city. There will be located the terminal proper of the two main lines, and feeder lines will be laid to the present 488,000-bbl. tank farm on

TANKER SHIPMENTS, NUECES NAVIGATION DISTRICT, 1937

Month—	Crude— Coastwise	Crude— Export	Refined— Coastwise	Refined— Export	Total
January	4,460,385	512,440	338,760	72,051	5,383,636
February	4,437,716	185,754	180,731	83,572	4,887,773
March	5,400,166	651,170	314,065	298,090	6,663,491
April	5,258,809	364,815	172,259	195,539	5,991,422
May	3,407,025	778,907	221,267	185,790	4,592,989
June	4,169,965	784,678	548,771	251,549	5,754,963
July	5,361,623	818,837	404,499	329,683	6,914,642
Total first seven months	32,495,689	4,096,601	2,180,352	1,416,274	40,188,916

PIPE LINE TERMINALS IN THE NUECES NAVIGATION DISTRICT

Company—	Size (inches)	Length (miles)	Terminal—	Area served—
Amsco Pipe Line Co.	4 and 6	15	Corpus Christi	Saxet
Atlantic Pipe Line Co.	6 and 8	48	Harbor Island	Refugio
Barnsdall Pipe Line Co.	6	76	Corpus Christi	Placedo
Crown Central Transportation Corp.	4	10	Corpus Christi	Saxet
Crude Oil Pipe Line Co.	4	25	Corpus Christi	Clara Driscoll
Crude Oil Pipe Line Co.	5½	72	Corpus Christi	Government Wells
Crude Oil Pipe Line Co.*	6 or 8	122	Corpus Christi	Government Wells
Duval Pipe Line Co.*	6	68	Corpus Christi	North Sweden
Houston Pipe Line Co.	4	7	Viola	Saxet
Humble Pipe Line Co.	10 and 12	355	Ingleside and High Island	West Texas
Humble Pipe Line Co.	6 and 8	120	Ingleside and High Island	Bee-Refugio and Taft
Humble Pipe Line Co.	6 and 8	225	Ingleside and High Island	Mirando
Humble Pipe Line Co.	4 and 6	18½	Viola	Flour Bluff
Magnolia Pipe Line Co.	8	170	Corpus Christi	Mirando
O'Hern Pipe Line Co.	4	33	Loma Novia	O'Hern
Pontiac Pipe Line Co.	4	15	Corpus Christi	Saxet
Republic Pipe Line Co.	6	20	Corpus Christi	Plymouth-Taft
Republic Pipe Line Co.	4	8	Corpus Christi	Saxet
Saxet Heights Pipe Line Co.	4	8	Corpus Christi	Saxet Heights
Sinton Pipe Line Co.	6	37	Corpus Christi	Plymouth-Refugio
Southern Pipe Line Co.	6	7	Corpus Christi	Saxet
Southern Pipe Line Co.†	2	6	Corpus Christi	Saxet plant
Sully Pipe Line Co.	5½	8½	Corpus Christi	Saxet
Texas Pipe Line Co	6 and 8	8	Corpus Christi	Saxet

*Under construction. †Gasoline line.

factors. Where wind electric units are to be used, it may be difficult or nearly impossible to find a the turning basin which will be utilized in loading to tankers.

May Build Refinery

A decision regarding the building of a 6,000-bbl. refinery at the new terminal site has not yet been made. The operators control considerable crude, which solves for them an important problem, particularly in the Corpus Christi district, where crude is at a premium. The Mirando type of crude handled mainly by the pipe line company is best suited for the refining of furnace oils and fuel oils. The present strong market for burning oils, coupled with the direct water transportation available to eastern consumption centers, creates an ideal situation for a skimming plant in that district. A decision on the plant will therefore hinge largely on the company's future policy of expanding into the refining field, or remaining in the crude transportation business. Cost of the new

YOU CAN BEAT THE TIME
with WEDGE CHILL RINGS

GAS WELD TYPE

Advantages of Chill Ring

Saves time in running the welding line.

Speeds aligning of the pipe.

Saves welding material.

Eliminates icicles. Assures a perfect union.

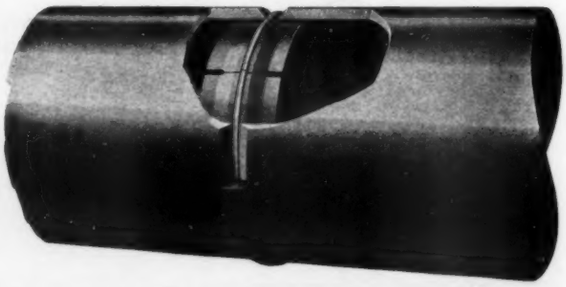
Eliminates the hazard of human inefficiency.

Perforated lugs permit egress of gas when welding.

ELECTRIC WELD TYPE

Practical Time Saving

Ask for complete information and prices



WEDGE PROTECTORS, INC., 9522 RICHMOND AVE., CLEVELAND, OHIO

project, exclusive of the refinery is estimated at $1,000,000.

Slated for early construction, the line of the newly incorporated Duval Pipe Line Co. has right of way surveyed. The company, a subsidiary of the Benedum & Trees interests and an associated unit with the Republic Pipe Line Co. which serves the Saxet, Plymouth and Refugio areas, extends Benedum & Trees activity to the Mirando district. The 68-mile 6-inch welded line will offer another tidewater outlet to production in the rapidly developing North Sweden and Sweden fields of eastern Duval County. Benedum & Trees Oil Co. and Hiawatha Oil & Gas Co., another unit of the company, own considerable production and undrilled proven acreage in both fields.

Of the three new projects in Corpus Christi, that of Barnsdall Oil Co. is nearest completion. A new pipe line moving production of the Placedo field in Victoria County to the port, is completed. The 6-inch 78-mile line terminates on the ship channel between the main turning basin and an auxiliary basin at Avery Point. Tankage is being erected, and a 5,000-bbl. refinery, including a Dubbs cracking unit, is under construction.

Shipments from the plant will be handled through a new oil dock at the refinery site. The dock measures 110 feet in length and 20 feet in width, and will accomodate one tanker. It will be connected to the plant by lines laid along a 950-foot fill. The newly dredged channel at the terminal has a depth of 30 feet.

Other Recent Construction

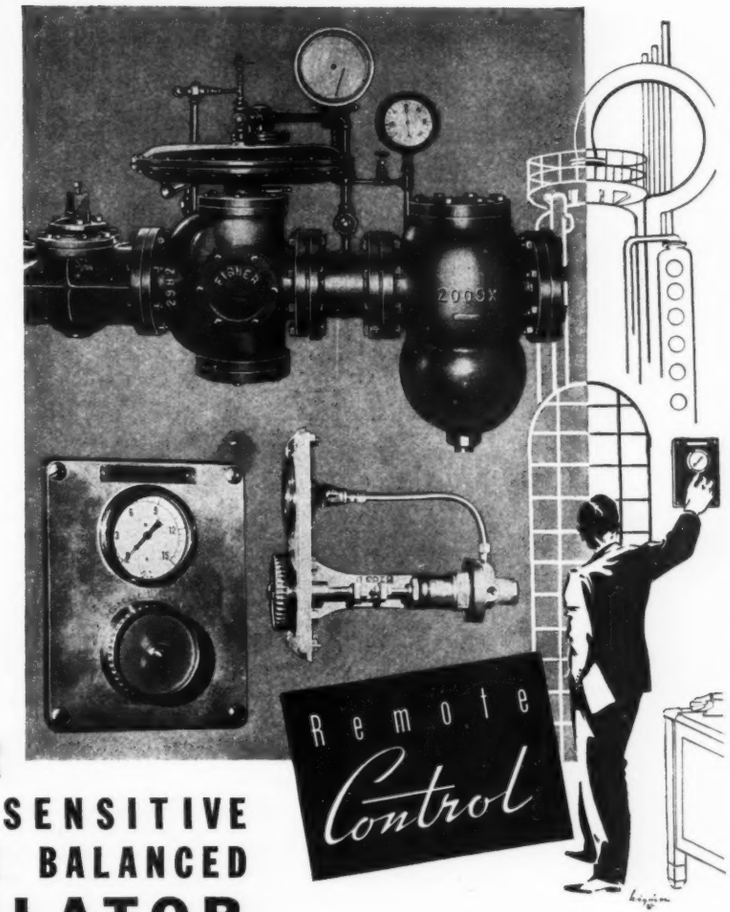
Several months ago the Crude Oil Pipe Line Co. extended its connections in the Mirando district, by building 33 miles of 4-inch line to the O'Hern and Bruni fields of Webb and Duval counties. The new line terminates at the Loma Novia field station of the Crude Oil line to Corpus Christi, thus enlarging the system to 105 miles of trunk line.

PIPE LINE TERMINALS IN NUECES NAVIGATION DISTRICT

Company and location—	Storage capacity (barrels)
Amsco Storage & Terminal Co., Corpus Christi	250,000
Atlantic Pipe Line Co., Harbor Island	405,000
Barnsdall Oil Co., Gorpus Christi	430,000
Corpus Christi Refining Co., Corpus Christi	500,000
Crown Central Trans. Corp., Corpus Christi	110,000
Crude Oil Terminal Co., Corpus Christi	488,000
General American Tank Storage & Terminal Co., Corpus Christi	800,000
Houston Pipe Line Co., Corpus Christi	185,000
Humble Pipe Line Co., Harbor Island	1,242,000
Humble Pipe Line Co., Ingleside	640,000
Pontiac Pipe Line Co., Corpus Christi	120,000
Republic Pipe Line Co., Corpus Christi	160,000
Southern Pipe Line Co., Corpus Christi	300,000
Texas Pipe Line Co., Corpus Christi	775,000
Total storage	6,405,000

Prior to these three important pipe line projects, Corpus Christi gained new activity by the addition of other lines. Magnolia Pipe Line Co. 85-mile 8-inch line from Tilden to Corpus Christi relieved the overloaded conditions in the company's Luling line, offering more direct water routing for coastwise bound Mirando crude. Spur lines extending to new fields, and looping of existing trunk lines converging on Corpus Christi have added considerably to the flow of crude to the three ports.

The increasing movement of oil to the district has necessitated the erection of much new storage at pipe line terminals. Altogether, 6,405,000 bbls. of storage will be available for handling the traffic when current building programs are completed. Both crude and refined products are shipped daily from the area, with the latter classification growing, as refinery construction gains in the area. Of the total storage cited in the table, all is available for handling crude and products prior to loading to tankers. Several hundred thousands of barrels of storage in addition to the listed tankage, has been provided by stock tanks for the handling of refined products during processing, and before shipment.



FISHER
SUPER-SENSITIVE
PRESSURE BALANCED
REGULATOR

THIS FISHER Type 781 pressure balanced Regulator has been developed especially for low or intermediate pressure regulation where the reduced pressure must be maintained with maximum sensitivity and accuracy. Particularly adaptable to natural gasoline plants, distribution control and for controlling gas pressure to burners on refinery tube stills, furnaces and similar controls. Available as illustrated with a panel mounting pilot loading unit installed in a remote position to the main valve. This enables the control house operator to accurately govern his fires from the control room. Also furnished for compact, close connected installations.

FISHER Type 781 has NO stuffing boxes, NO springs, NO levers and NO weights or other friction creating mechanism. Sizes: ½" to 16" and for all normal gas pressures for pounds to pounds, or pounds to inches of water column regulation. Same design Regulator also available for pressure relief service. Write for FREE Fisher Gas Catalog 32-B.

Fisher Sales Engineers in Every Principal City

LIQUID LEVEL CONTROLLERS ★ PILOT OPERATED REGULATORS ★ GAS REGULATORS ★ PRESSURE REGULATORS ★ PUMP GOVERNORS ★ FLOAT VALVES ★ STEAM TRAPS ★ STRAINERS ★ REFINERY and OIL FIELD AUTOMATIC CONTROLS of SPECIAL DESIGN

FISHER
AUTOMATIC CONTROL

FISHER GOVERNOR COMPANY
201 SOUTH FIRST AVE., MARSHALLTOWN, IOWA

CATHODIC PROTECTION UNITS

. . . for your

Pipe Lines

Different locations present different corrosion problems. Protection for your pipe lines can not be left to chance.

A thorough survey — proper diagnosis of the particular difficulty and the application of a Cathodic Protection Unit to eliminate this trouble — can only be made by engineers, trained and specializing in Pipe Line Protection.

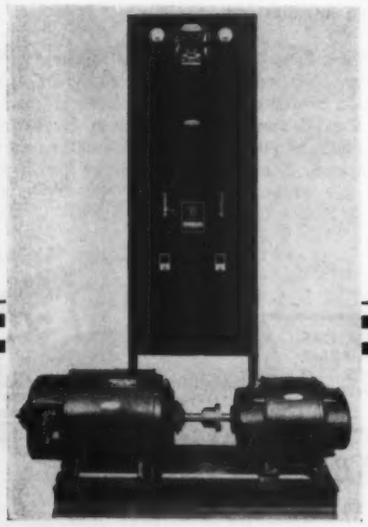
Brance-Krachy — Crutcher-Rolfs-Cummings — Service covers the entire subject. Put your problems up to them.

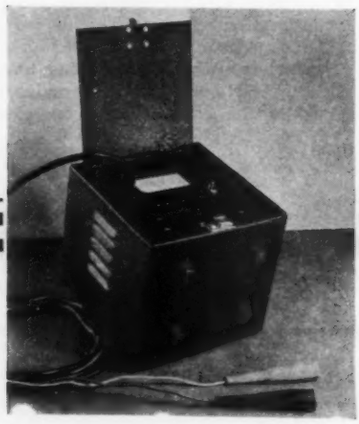
BRANCE-KRACHY COMPANY, Inc.

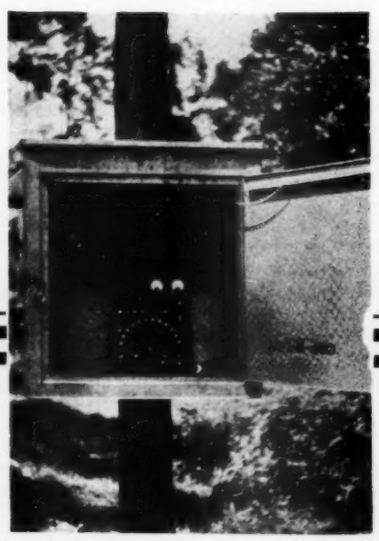
DISTRIBUTED BY

CRUTCHER-ROLFS-CUMMINGS, Inc.

HOUSTON, TEXAS







Cathodic Protection of Pipe Lines in City and Country

By ROBERT J. KUHN
Consulting Engineer, New Orleans, La.

Ten years ago cathodic protection, an electrical process of protecting underground pipe lines from the effects of natural soil corrosion and galvanic action, was practically unheard of. There may have been work done along these lines in other countries or in isolated instances in the United States but in such nationally known gatherings devoted to corrosion as at the Bureau of Standards corrosion conferences, American Petroleum Institute and American Gas Association corrosion meetings, very little was ever heard of electric currents on pipe lines, especially natural or galvanic currents. True, the question of electrolysis due to stray railway and other sources of direct current was an old one, but a great deal of the early work was aimed at keeping these currents off the pipes rather than inviting their entry.

At the 1928 Bureau of Standards corrosion conference held in Washington, D.C., I presented a paper entitled "Galvanic Currents on Cast Iron Pipes, Their Causes, Methods of Measuring and Means of Prevention." This paper was based on original research conducted several years previous as to the causes of very severe corrosion on cast iron pipes in the alluvial soils of New Orleans. This paper, while fairly widely distributed, has never been published in any magazine and is available only upon special request. Possibly this paper will still be published.

Scanning over the 30 or more papers presented at the 1928 Bureau of Standards meeting, this seemed to be the only paper devoted entirely to the subject of galvanic electric currents on pipe lines both of a local and long line nature. At the time mention was made of the protective action of electric currents on cathodic protection as we call it today although this latter phase of the problem was not dealt with in detail. However, the principles of the process were well known and much experimental work had been performed. Methods of measuring the galvanic currents had been perfected and reported on and methods of determining to what extent cathodic protection was required had also been determined.

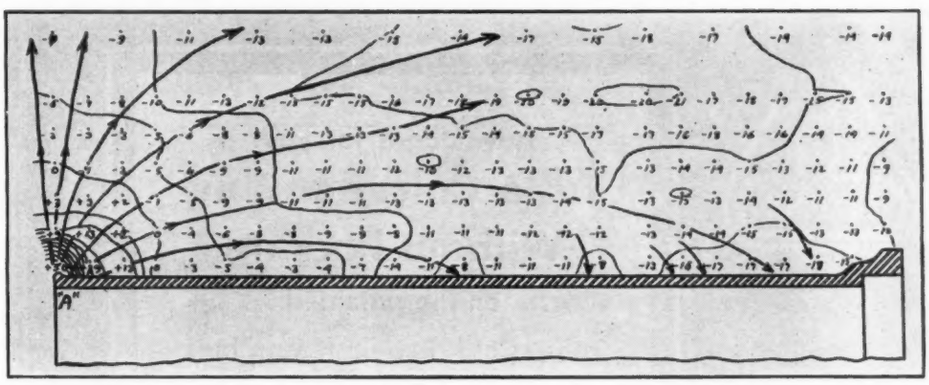


Fig. 1—Natural galvanic millivolt differences in the earth surrounding an isolated length of 48-inch coal tar dipped cast iron pipe showing equipotential and galvanic current stream lines drawn. 10-29-26 Point "A" represents heavy discharge or corrosion area

Figure 1 shows the results of measurements of galvanic currents flowing in the earth around an isolated length of 48-inch cast iron pipe while Figure 2 shows the configuration of currents in the same spots in the earth around the same pipe after cathodic protection had been imposed on the pipe. Cathodic protection in this case was made sufficiently strong to cause collection of current on the entire surface, completely counter-balancing the former galvanic currents as can be seen by the arrows representing the current stream lines.

The results shown in Figure 1 were included in the 1928 paper at the Bureau of Standards meeting but the results in Figure 2 were not included since the paper dealt more with the causes of corrosion than with the methods of prevention. The tests represented by Figures 1 and 2 were performed on October 28, 1926, and November 3, 1926, respectively, and represents some of the earliest work on cathodic protection from which the present movement has sprung.

The results of these tests are shown here as a matter of present-day interest as well as historical to show the mechanism of galvanic and cathodic currents around the surface of a pipe.

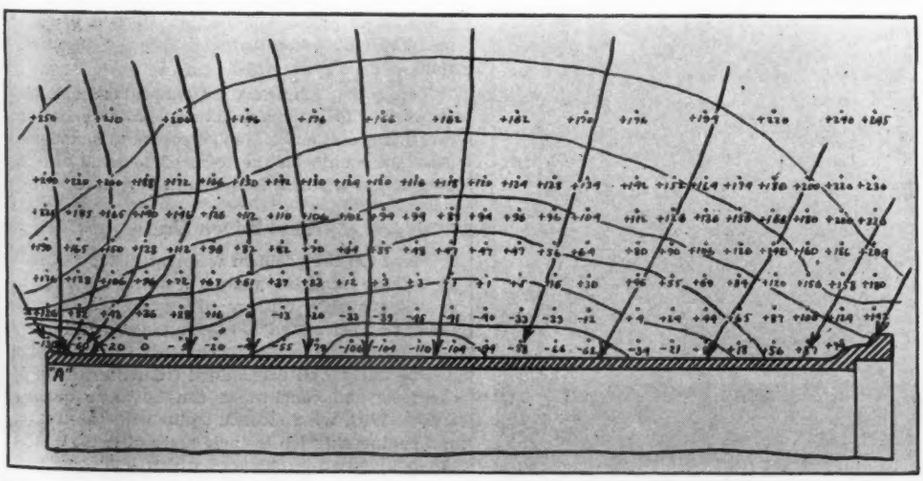


Fig. 2—Cathodic protection current collecting on an isolated coal tar dipped cast iron pipe with equipotential and current stream lines shown in surrounding earth. Note that the cathodic current has completely counteracted the natural discharging or corroding galvanic currents shown in Figure 1

Present-Day Situation

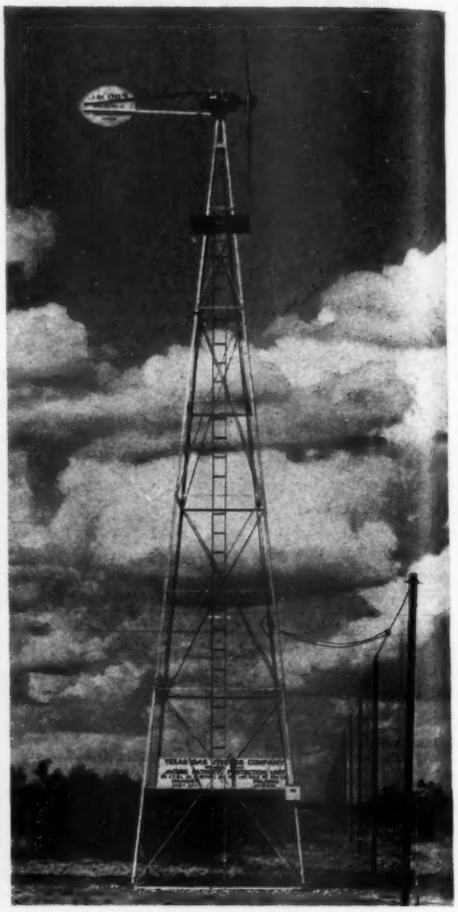
Today the situation is quite different. At every corrosion conference papers are presented, many dealing with galvanic and long-line electric currents on pipe lines. Too, cathodic protection is a widely written and discussed topic. The pipe liner no longer distrusts electric currents on his oil, gas or gasoline pipe lines and in many cases is preparing to install currents thereon to protect his lines from corrosion.

Cathodic protection has been installed on high-pressure gas transmission and distribution mains in New Orleans and outlying areas for nearly 10 years and has been in use on parts of the low-pressure distribution network now for a good number of years. Today an extensive program of steel low-pressure gas network mains is being laid and protected with cathodic protection in the city proper. These mains are being laid in a very wet, acid muck area which is poorly drained and which was formerly a cypress swamp subject to tidal overflow. Many special details of construction had to be

worked out, including the design and placing of insulated joints, of test and current carrying wire conductors, electrical generating equipment, anodic ground beds, and a host of other details. Heavy mill wrapped coating is being used and the electric current requirements are small but still they have to be provided for and with particular reference to other structures to see that no damage is done.

It is a proven fact that cathodic protection of pipe lines is very practical in a city network even in the most crowded quarters but such installations should be extremely well designed with a thorough knowledge of the behavior of stray currents, of coating characteristics and many more features and detail which, if ignored, may result in bad design and operation and eventually cause more damage than protection. In city streets there are very costly telephone, telegraph and in many cases power cables and other underground structures. Many of these structures are very easily damaged by minute amounts of earth currents which may not be properly regulated, resulting in great damage both intrinsically and due to loss of service or attendant results. In a recent survey I have seen several cases of cathodic protection installations in the crowded industrial areas near New York in which the underground structures adjacent to the installations were adversely affected. Many economies can be made in initial cost and possibly in avoiding later damage by a thorough survey and design by some one experienced in such matters rather than leaving this work to the regular men who must devote much of their time to other duties.

In the country the general problem of cathodic protection of a pipe line is far different than in a city. One advantage is the greater freedom of action in protection without the concern for other structures as is the case in the cities. Then, too, cost of doing work on old lines is usually less expensive than under paved streets in cities. But in the country we are faced with the problem of securing electric power in some convenient form. In more settled regions rural power lines abound and the power supply problem is not serious. Sometimes slight extensions have to be made but if less than a mile, such work is not prohibitive. On one job in which I will shortly have about 65 miles of 18-inch line under protection, it was possible to secure electric power from the regular sources in all instances for the several rectifiers used to protect this system. In most of these cases power was secured from a 13,000-volt line stepped down to 120 volts single phase, and further stepped down to about 20 volts before being rectified to direct current.



Windmill generator

On another job near the Mexican border, it was impossible to get manufactured power except at exorbitant cost and it was necessary to install self-generating units in the form of 15 wind electric plants, one of which is shown in Figure 3.

Wind-Driven Units

Here too the problem was materially different from those locations in city or country where power was available. With rectifiers the loads can be fairly well calculated and testing is relatively easy on account of the steady currents. Relationships can be fairly well determined from the results of the tests and conclusions can be more quickly drawn. With wind electric equipment, the testing and engineering job is made more difficult by the highly fluctuating currents which follow no pattern by which we may ever apply time correction factors as is the case with the highly fluctuating stray railway currents in the cities. Our street railway electrolysis experience serves us well, therefore, to a great extent in handling the prob-

lems where it is desirable to use wind electric equipment. In many cases the same meters and test methods cannot be employed for fluctuating currents as used for steady currents and to attempt their use would lead to confusion.

The wind electric equipment, despite the trickeries of testing, furnish a very attractive means of power generation with practically no operating and maintenance costs to contend with. With rectifiers we have the monthly power bills which can mount as high as $16 per month or more for a single rectifier while with gas-driven motor generators we have the inspection, lubrication and maintenance and replacement costs.

Wind Uncertain

The greatest enemy of the wind electric plants is the uncertainty and variability of the wind, but against this liability we have as an asset the polarization and film formation on the cathodically protected pipes which carry protection over into the light and no-wind periods. With rectifiers or other equipment where power is available it is possible to design the generating unit to the exact requirements, but with wind electric units the maximum generating capacity must be three to four times the current capacity of a steady unit. Still, the wind electric unit is very satisfactory and the most economical unit for many locations. It is possible it may even compete with purchased power in some cases since the unit used for cathodic protection has no batteries nor expensive controls which are used for farm lighting plants upon which most cost comparisons have been made. This territory, however, is marginal and, according to present trends, installations in such cases will probably be more experimental than regular. Several companies have been using gas-driven motor generator sets in outlying areas. Such sets are generally air-cooled units on account of the problem of steady water supply. These sets in the case of gas lines derive their power from the gas in the protected line. Continuously running gas-driven motor generator sets create many problems such as lubrication, cooling, and the usual wear and tear on valves, cylinders, pistons, bearings, etc., on a hot running motor. Slow-speed engines have been developed and some companies report great success while others report trouble of various sorts. Obviously there will be greater wear and tear on such units than on a simple well-designed direct driven wind electric unit operating at slow speeds. Very good cost comparisons are difficult to find at present, due to the newness of these types of equipment, but one thing should be borne in mind, regardless of the cost of either type of equipment, both methods are so far below the cost of replacing or reconditioning pipe lines as to drawf the petty differences between costs of different generating equipment for cathodic protection. On an 18-inch line the cost of reconditioning amounted to about $6,000 per mile, whereas the cost of cathodic protection under unfavorable conditions did not exceed $1,100 per mile, so why fuss over a slight difference in cost of some of the equipment? We still have a lot of elbow room for experimentation. Other things being equal, why not install the equipment which will require the least amount of inspection and repair, and it seems wind electric units fill this bill at present for out-of-the-way locations where there are favorable winds.

General Notes

It sounds like a simple matter to attach a wire from the negative side of some source of direct current to a pipe line and connect the positive side to an auxiliary ground plate and secure cathodic protection. But that is the process in substance and not in detail. What size should the generator be is one question. In New Orleans in one case we are protecting 5 miles of 8-inch line with .1 ampere at about 1 volt, while in another location we drain at times over a thousand amperes from a 16-inch steel gas main. In some cases on an 18-inch line the current drained is 15 amperes, while in others the current is 2 amperes. The current capacity of the wind electric units which I installed near the Mexican border are 90 amperes at 15 volts and these are on 6- and 10-inch lines. These mills protect about 3 to 5 miles of line, yet on another section of the same 10-inch line 9 miles of line can be protected with 2 amperes. Obviously a 90-ampere wind electric unit should not be used solely to protect this latter 9 miles of 10-inch line. Much of the design of protection stations depends on the value of the coating on the job and upon other factors, including soil resistivities. How big should the ground plate be and how far from the line, the size of wire to use, the proper location and spacing of protection units, the design of the grounding and wiring around the units and many other details come up which, if not properly taken care of, may add to the initial cost and may cause damage in some instances.

One of the largest items of expense in this method is that of the anodic ground plates. In the past we have usually used abandoned street car rails in the cities and even the operative rails. In the country and other places where no rails were available, junk cast iron and steel pipe has been used. Cast iron is preferable to steel since the residue from the corroded cast iron is a graphitic shell which is a conductor of electricity and which prevents the anodic pipe from being eaten in two as may be the case with steel. Due to the great demand for scrap iron and steel it is becoming increasingly difficult and expensive to secure junk cast iron and steel. The selection of the sites for the ground plates as well as the general site for a cathodic protection station involves the greatest skill and experience of the engineer. Frequently it is an easy matter to find the exact location on the line where cathodic protection is desirable, but to find a satisfactory site for the ground plate nearby and a site that will allow full use of the expensive installation and equipment may be hard. In most

Champion "77" Stands Up in Hard Service

HERE is a Champion "77" Positive Seal Pipe Coupling on an 8-inch crude oil line, carrying oil under a pressure of 900 pounds per square inch in an emergency hook-up around a break to permit uninterrupted deliveries of oil.

The coupling is being used with the swage and 4-inch temporary connection set up with double swings. It is not reinforced or braced in any way. Although there was a lateral motion of the 4-inch Tee at the upper end of the swing which exceeded 3/32-inch when pump strokes were in step, there was no leakage. When the line was taken up the serrations in the line pipe caused by the clamping action of the Champion coupling showed no signs of stretch or slippage.

During the run, it is estimated that the clamp supported a total end pressure exceeding 25 tons.

CHAMPION Pipe Couplings supply these features: ¶Positively sealed connections that withstand fluctuating hydrostatic pressures up to 4,000 pounds and hold a vacuum indefinitely. ¶No anchorage required as the drop-forged gripping rings bite into the pipe. Couplings fit either plain end or beveled end pipe. Joints are flexible, still as strong and as tight as the pipe itself.

Distributed by

THE CONTINENTAL SUPPLY COMPANY

THE CHAMPION MACHINE & FORGING CO.

3695 E. 78th St. Cleveland, Ohio

With This PIPE LINE RADIO

REQUIRING NO TECHNICAL EXPERIENCE

Receiver complete as shown above, weighs but 7 lbs. It may be carried all day without fatigue—no back-breaking packs to carry—no lines to trip over. Everything is complete in one hand, except phones worn on head. Transmitter complete with batteries weighs 10 lbs.

- *You can accurately follow a designated line underground*

  WITHOUT CONFUSION FROM PARALLEL LINES, OR CROSSINGS.

- *You can quickly and within inches tell the depth line is buried at any point.*

- *Laterals are easily located and changes in diameter of line are easily detected.*

Complete with spears and leads, spare parts, tools, carrying cases and head-phones, the price is

$197.50

Write for additional information.

1/4 AS HEAVY 5 TIMES AS SENSITIVE

We Manufacture Many Special Instruments
Seismic Equipment, Supplies, Etc.

ENGINEERING LABORATORIES, INC.

KENNEDY BUILDING, TULSA, OKLAHOMA, U.S.A.

Affiliated With

Seismograph Service Corporation

R. B. HALL & COMPANY

Sales and Engineering

Magnolia Building
DALLAS, TEXAS

Ruberoid Asbestos Pipe Line Felt, Primers, Enamels, Roofing and Asbestos Products.

Composition Tank Roofs and Bottoms installed.

SPECIALIZING IN UNDERGROUND PIPE LINE PROTECTION AND OIL STORAGE TANK CORROSION PROBLEMS.

Specifications and prices upon request.

SEE RUBEROID AD ON PAGE 120.

NATIONAL AIROIL BURNER COMPANY

ESTABLISHED 1912 INCORPORATED 1917

Manufacturers
Installation
Engineers
Sales - Service

Industrial Oil Burners Gas Burners and Furnace Equipment

NATIONAL AIROIL BURNER

NAIROIL Automatic Oil Burners for HOMES APARTMENT HOUSES CHURCHES, STORES FACTORY BUILDINGS OFFICE BUILDINGS

Offices and Salesrooms 1325-27 Girard Avenue
Factory L St. & Sedgley Avenue
Philadelphia, Pa.

cases a compromise has to be reached and if suitable ground locations are found where wanted, it is a rare occurrence. Then, too, the location of power supply has to be coordinated with the other site in a low well-wooded spot or frequent floods in these low areas may prevent the placing of equipment in otherwise suitable locations. Once placed in the earth, the anodic ground beds are usually there to stay, for in many cases it would not be economical to remove the bed and place it elsewhere. Since the cost of anodic ground beds is a large item of the total cost, mistakes in location should be carefully avoided.

Choice of Anodes

Carbon anodes have been used by some companies but the carbon rods introduce additional problems which have to be solved. I have not heard any convincing arguments in favor of the carbon anodes and so far I am continuing the use of junk cast iron and steel.

Zinc sheets and rods have been used in some cases. Zinc is not used merely as an anode but serves also as a generator due to the electro-chemical difference of potential between zinc and iron or steel. The voltage available for zinc is small and limited, and whether complete protection can be secured with zinc in all cases is problematical. The zinc anodes must be numerous and well separated and distributed along a line since it would be impossible to generate a large current with a huge clump of zinc due to RI drop being limited by the small generated voltage. Zinc is useful where small currents are required in special cases but whether it will supplant generated currents for cathodic protection is doubtful except perhaps for some new lines where the protection program has been well designed with this method of protection in view.

Another hazard which may be created by an improperly designed cathodic protection layout is interference with main line railway safety signaling equipment. I have actually seen a case of stray currents causing the signals on a main line to show clear when the signal should have shown danger, a condition which may cause serious hazards to life as well as to property. Such conditions are practically impossible in a well-designed system, however.

Relative Corrosion

A point of issue in corrosion work is the degree to which the pipe line must be reduced in potential in order to prevent corrosion on the pipe. Some investigators claim .3 volt is sufficient; some claim .1 will do the work, but I have seen cases where perhaps .6 volt is required. Then, too, there is a wide degree of opinion on just how to measure this potential difference and what is its significance. This value is a very important factor since the initial investment in cathodic protection equipment is oftentimes nearly directly proportional to this figure. Where power is being purchased, the power bill is roughly proportional to the square of this value which makes it imperative to know approximately the exact degree to which the pipe must be cathodically lowered in potential.

It is evident, therefore, in applying cathodic protection to a valuable pipe line system that the fundamental scientific and engineering principles must work hand in hand with practical considerations. The engineer must work with and receive counsel from the practical pipe liner in order to install a successful plant which he expects the pipe liner to operate. Likewise the pipe liner should not attempt installations without counsel of the engineer lest he invite disaster.

Acknowledgements

Arthur F. Bridge, Fred Hough and Arthur Allyne, Southern Counties Gas Co., Los Angeles, Calif.

Starr Thayer and S. U. McGary, United Gas System, Houston, Tex.

R. M. Redding, Dallas Gas Co., Dallas, Tex.

J. L. Culbertson and Vincent Lee Neely, Texas Pipe Line Co., Houston, Tex.

R. P. Paden, Atlantic Pipe Line Co., Dallas, Tex.

Improved Methods Developed in Oxy-Acetylene Welding

Developments in equipment and methods for oxyacetylene welding of pipe lines during the past year have to do principally with the all-bell-hole welding method of construction utilizing the Lindeweld process. From its start several years ago, this method of pipe line construction has received increasingly wide acceptance by contractors and pipe line companies. In the past two years this method has come into quite general use, displacing the "firing-line" or "storm gang" method on most of the shorter lines and to some extent on the longer ones. This newer construction method is known in the field by such terms as "stove-piping" and "stab-on method," and has been shown to be highly flexible in that it can be easily adapted to varying conditions of available equipment and man power.

Now that all-bell-hole welding construction has become so well established, especially for the shorter lines, it will be helpful to look back and analyze the reasons for its quick popularity. Such an analysis may well form the basis for choosing between this and the older construction method for new lines that are to be built.

Basic Procedure

Although they differ in details, any of the all-bell-hole methods use the following basic procedure: Pipe lengths are individually lined up one after the other, usually over the ditch, and are then welded into a continuous line, each weld being made without turning the pipe. In the simplest form, the stab-on method, two operators commence welding the joint just as soon as it is lined up, eliminating the usual tack-welding. Bending, line-up, and welding operations are all taken care of by a crew working comparatively close together.

The less simple "stove-pipe" method allows for greater daily production. In this case the joints are tack-welded as they are lined up, and from two to six or eight welders, depending on daily production desired, follow in behind and make the welds in position.

With the older method of roll-welding or "storm-gang" construction, the line-up and welding gangs may be miles apart from the bending and laying gang, if the right of way is rough and many bends are required. This in itself explains one reason for the popularity of the newer method, because all operations are concentrated at one point, making supervision and the trucking of supplies much simpler.

Although the daily mileage possible with one gang using the all-bell-hole method is somewhat less than with roll-welding, there are other compensations. Using the newer oxyacetylene method, however, which employs backhand technique and an excess acetylene flame, bell-hole welds can now be made almost as rapidly as roll welds. In fact, bell-hole welds, take but 10 to 20 per cent more time, and little, if anything additional in the way of gases and rod. Ordinarily this decrease in weld production per operator is more than made up by a general increase in efficiency of the construction gang as a whole.

Bending and Laying

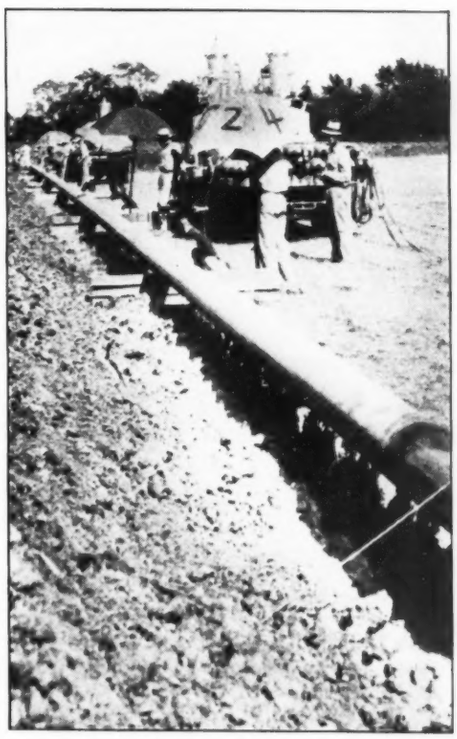
In contrast to the older roll-welding organization, the bending and laying is moved up to the front end and consolidated with the line-up and tack-welding gang; the firing-line and bell-hole gangs are consolidated into a single bell-hole welding crew. Or, looking at it another way, it will be seen that the bending and laying gang simply handle 40-foot lengths of pipe instead of 200-foot sections, thus eliminating entirely the line-up and firing-line gangs. This gang makes bends where necessary, lines the lengths up over the ditch on skids, and tack-welds the joints ready for the bell-hole welding. Naturally, bending is a little different because of the shorter lengths handled, and the number of men bell-hole welding must be such as to get suitable daily production.

Thus, with the simpler organization all-bell-hole welding makes possible, construction costs are often considerably reduced. The fact that a greater number of operators are becoming quite proficient in bell-hole welding, has contributed to some excellent production records with the new method.

Advancements

Advancements in the all-bell-hole methods have been noted chiefly in smoother, quicker line-up operations, and especially in handling pipe that is to be bent to fit the ditch ahead of lining up the pipe for welding. The welding set-up has also been brought to a greater state of perfection.

There is no particular difficulty with "rainbows" in the pipe, dollies are no longer needed because the pipe is not rolled, and all operations are grouped in a relatively short stretch along the line. The result is that better supervision can be maintained from front end to back end.



Bell-hole operators follow directly behind tack-welding operations

On gas lines, the wrinkle-bend method of bending pipe to fit the ditch is becoming popular generally. A narrow band is heated a distance half to two-thirds the way around the pipe with the oxy-acetylene flame and the pipe is then bent so as to leave a wrinkle in the pipe wall projecting outward. Wrinkles can be placed close together for short, sharp bends or they can be spaced more widely apart for the long, gradual ones.

Cold Bending Methods

Various cold bending methods are employed on oil lines, depending on equipment available to do the job. Sometimes two or more lengths must be welded together first before the bending can be done. It is only natural that the greatest amount of progress has been made during the past year in handling the bending and line-up operations for the all-bell-hole methods, since in rough going, where many bends must be made, this sets the pace for feet of line welded per day.

Entire line-up and tack-welding crew bunched on this "all-bell-hole" job

New Stations

Two new compressor stations are now under construction by Memphis Natural Gas Co. near Wilmot, Ark., and Lula, Miss., and an additional compressor is being installed at the station at Guthrie, La.

Gas Line From Rio Vista Field Rapidly Nearing Completion

By L. P. STOCKMAN

Pacific Gas & Electric Co., first to lay a primary gas transmission line out of Kettleman Hills, is constructing 58 miles of new line to carry gas from the Rio Vista gas field in Solano County to distributing systems in Solano, Marin, Sonoma, Napa and Yolo counties. This new work, part already completed, will represent an investment of $904,000 and was sanctioned last June by the State Railroad Commission. The new line, which consists of several short laterals and extensions in five counties, will provide greater flexibility of operation and be welded from start to finish. A 12-inch high-pressure line will, upon completion, extend north of the Rio Vista gas field 6 miles and from this point a 10-inch line will be run westward to the Napa Y junction on the state highway in Napa County, a distance of 26 miles. Here connection will be made with the main trunk to bring Kettleman Hills gas through Vallejo to Petaluma across Carquinez bridge. From the point 6 miles north of the Rio Vista gas field, a 10-inch line will be run northeasterly to Dixon, a distance of 16 miles, to make connections with the existing Dixon-Davis 6-inch trunk line. In addition to the above, a 12-mile link of 8-inch welded line will be run northward from Davis to Woodland. The laying of this new natural gas line does not involve any unusual construction problems. (Map on page 94.)

Towns Served

Completion of the new line will bring gas from the Rio Vista gas field to all towns in Solano County except Benicia and Vallejo, which for the present will be served with gas from Kettleman Hills. In addition to this work, Pacific Gas & Electric Co. has opened negotiations with the Natural Gas Co. of California, subsidiary of Pacific Public Service Co., for purchase of a butane gas distributing system in Rio Vista, Fairfield, Suisun and Vacaville. If negotiations are successful, the butane distributing system will be connected with existing facilities of Pacific Gas & Electric Co. and natural gas substituted for the butane now used. Pacific Gas & Electric Co. originated as a small gas company more than 75 years ago but has expanded until it serves an area having a population of approximately 2,750,000 and has about 500,000 customers using natural gas exclusively.

Gas Survey

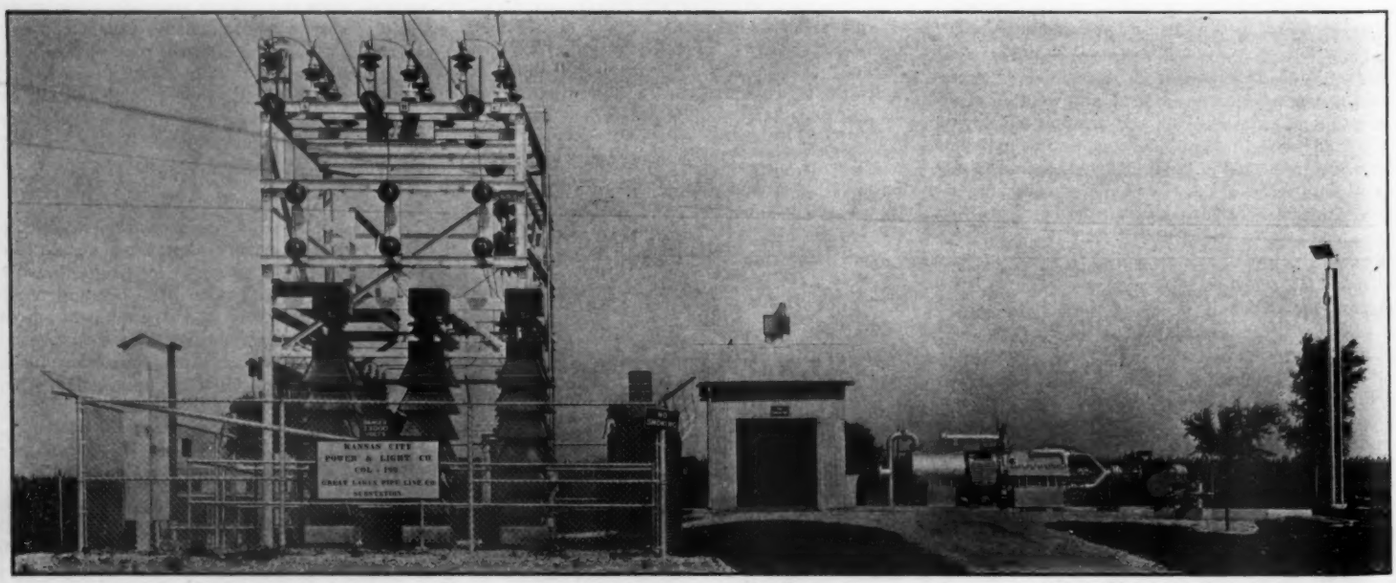
Authorization to construct the new lines was given by the State Railroad Commission upon approval of a contract whereby the utility agreed to purchase a minimum of 11,000,000,000 feet of natural gas from Amerada Petroleum Corp. and Standard Oil Co. in the Rio Vista gas field during the next three years. Roughly, this means Pacific Gas & Electric Co. had signed contracts to purchase a minimum of 3,700,000,000 feet of gas annually or approximately 300,000,000 feet monthly, at the approximate rate of 10,000,000 feet per day. The average initial daily production of wells in the Rio Vista field is in excess of 40,000,000 feet per day and no well has shown an initial daily production below 35,000,000 feet.

Before Pacific Gas & Electric Co. was authorized to begin construction work, the State Railroad Commission conducted a survey to ascertain if the gas available would justify the expenditure necessary to build the line. This survey indicated the Rio Vista field had a normal expectancy of approximately 200,000,000,000 feet from present known horizons, or more than 18 times the amount contracted for.

Rio Vista

The Rio Vista gas field was discovered by Amerada Petroleum Corp. in June, 1936, and up to the present this company has completed 12 productive gas wells on the Emigh, Drouin, Happe and Hamilton leases in section 26-4-2, the Triqueiro, Marks and J. C. Hamilton leases in section 24-4-2, Serpa lease in section 23-4-2, Marks lease in section 22-4-2, Mayhood lease in section 35-4-2, and Neil Hamilton lease in section 36-4-2. Due to the absence of pipe line facilities, this field has not yet gone on sustained commercial production. Initial production of these wells has averaged approximately 40,000,000 feet daily from a productive zone about 400 feet thick. In addition to the 12 wells finished by Amerada Petroleum Corp., Standard Oil Co. has completed one gas well on the Anderson lease in section 35-4-2 but has abandoned No. 1 Neal Anderson in section 27-4-2 as a dry hole. At present, Amerada Petroleum Corp. appears to control practically all potentially productive acreage, although Tracy Drilling Co. has recently started a test on the Hansen property in section 25-4-2 which may possibly be found productive as Amerada has developed commercial gas production north, south and west.

Due to the economic rights of oil fields by which gas companies are obliged to give priority to gas produced in conjunction with oil over gas produced in exclusive gas fields, the latter group,



Transformers and power distribution station serving the 700-hp. station on the Great Lakes Pipe Line Co.'s gasoline line at Bonita, Kans.

consisting of the Tracy, Rio Vista, Semi-Tropic, Buena Vista Lake, Delano, Buttonwillow, McDonald Island and Goleta gas fields, has up to the present been prevented from going on a regular production basis. Decreased production in the Kettleman North Dome field and a general decline in other oil fields has changed the picture to some extent and it appears probable commercial deliveries of gas during the forthcoming winter from exclusive gas fields will reach the highest point ever attained. The Tracy gas field of San Joaquin County, discovered by Amerada Petroleum Corp. a few years ago and where the company has drilled and completed six gas wells in sections 15-2-5 and 22-3-5, is connected with Pacific Gas & Electric Co.'s main trunk at the southern end of San Francisco Bay. Productive acreage of this field is held exclusively by Amerada Petroleum Corp.

The McDonald Island gas field of San Joaquin County was discovered by Standard Oil Co. and up to the present five gas wells have been completed. Early in 1937, pipe line connections were made with the Stan-Pac line, but only a limited amount of gas is being moved at present. This field should become a factor of considerable importance to San Francisco Bay region later, as the five completed wells are capable of producing at least 50,000,000 feet per day. Both Pacific Gas & Electric Co. and Southern California Gas Co. have pipe line connections with the Buttonwillow gas field of Kern County, discovered several years ago by Seaboard Oil Co. The latter's gas line from the Semi-Tropic gas field of Kern County passes through Buttonwillow en route to connection with the main trunk extending southward to Los Angeles. In the Buttonwillow gas field, Seaboard has completed 25 gas wells and General Petroleum Corp. and Texas Co. two each. In the Semi-Tropic gas field, Standard Oil Co. has completed 7 gas wells, Fullerton Oil Co. 10, Seaboard Oil Co. 4 and Superior Oil Co. 1. In the Delano gas field of Kern County, Standard Oil Co. has completed six commercial gas wells and Trico Oil & Gas Co. two. All have been shut in since completion. The Goleta gas field of Santa Barbara County, where General Petroleum Corp. has completed three gas wells, Standard two and Shell Oil Co. one, is connected with facilities of Southern California Gas Co., but the field has been on production for limited periods only at infrequent intervals.

Main Trunks

Pacific Gas & Electric Co. operates 858 miles of gas transmission lines including its original line from Buttonwillow and Kettleman Hills to San Francisco and the Stan-Pac line owned jointly by Standard Oil Co. and Pacific Gas & Electric Co. which is 200 miles in length northward from Kettleman North Dome field and connects with facilities at Richmond in Contra Costa County. Branches from Pacific Gas & Electric Co. main line serve customers at Stockton, Lodi, Sacramento, Roseville, Davis, Dixon and intermediate communities, but upon completion of the new 58-mile line gas from Rio Vista will be used also. Another branch line of Pacific Gas & Electric Co. serves customers at Salinas, Monterey, Watsonville and Santa Cruz and still another, which leaves the main line at Huron and extends 40 miles across the floor of the San Joaquin Valley, serves Modesto, Patterson, Newman, Gustine, Fresno, Merced and other communities in the immediate vicinity. In the North Bay area, Sausalito, San Raphael, Santa Rosa, Napa, Petaluma, Sebastopol and other adjacent communities are either already being served with gas or will be connected to the system upon completion. The company's gas transmission systems are so flexible at present the lines are interchangeable.

Pacific Gas & Electric Co. constructed the first main transmission line from the San Joaquin Valley to the San Francisco Bay region in 1929 at an approximate cost of $13,000,000 and increased storage facilities in San Francisco and Oakland to more

McCord Lubricators

THE COMPLETE LUBRICATOR LINE

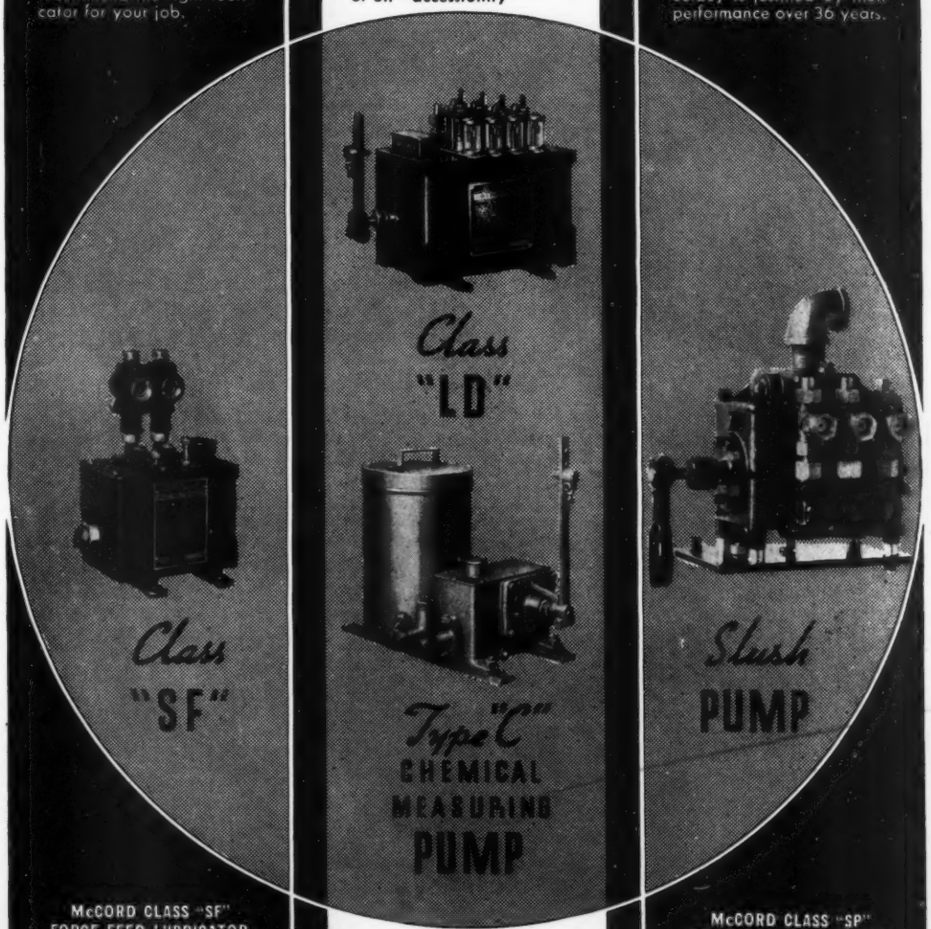
There is a McCord Lubricator the right lubricator for every lubrication need. 36 years experience enables McCord to build and recommend the right lubricator for your job.

McCORD CLASS "LD" FORCE FEED LUBRICATOR

The only positive lubricator for pumping engines Features are: Extreme accuracy from a fraction of a drop to a full stream—every drop of oil passing through sight feed is delivered—accuracy maintained regardless of viscosity of oil—accessibility

STANDARD LUBRICATORS OF THE OIL FIELD

More McCord lubricators are in use in the oil field than all other makes. This outstanding preference for McCord quality and accuracy is justified by their performance over 36 years.



McCORD CLASS "SF" FORCE FEED LUBRICATOR

For compressors—gas engine driven compressors. Features are: Removable pumps—differential plunger gives extremely accurate delivery and fine adjustment—tested at 3,000 lbs. —hand flushing unit and adjustment—positive liquid sight feed.

McCORD CLASS "C" CHEMICAL PUMP

A proportioning or measuring pump for the injection of chemicals into crude oil lines. Totally enclosed. Extreme accuracy—long life and reliability are McCord features.

McCORD CLASS "SP" FORCE FEED LUBRICATOR

For slush pumps and steam drilling engines. Features are: positive oil delivery at all times—rugged construction—long life—extremely flexible oil delivery—removable pump units—recommended for use with super-heated steam.

McCORD RADIATOR & MFG. CO. DETROIT, MICHIGAN

You Never "Slip" with Acme's Improved Trip Spear

TO AVOID extra cost—in time, labor and material—when fishing for 7" API and smaller size casing, use Acme's Latest Improved 3-Slip Trip Spear (4 Slips for larger sizes).

New 3-slip design practically doubles strength; long slips and full circle grip guard against bulged casing; full length support for slips under all conditions prevents "bulldogging" due to broken slips; and Acme's Improved Patented Setting Latch insures the correct hold with easy tripping.

There is an Acme Dealer near you—call on him for help, day or night.

WRITE FOR NEW CATALOG No. 12

Write TODAY for New Catalog, showing complete Acme "Drilmor" Line. Filled with information to aid you in meeting the toughest drilling and fishing problems.

ACME FISHING TOOL CO.

PARKERSBURG, W. VA.

"The Mark of Highest Quality Since 1900"

Weighs Only 60 lbs.

$85

IT'S THE SENSATIONAL NEW STERLING FEATHERWEIGHT

A portable, compact, efficient and rugged self-priming pump that weighs only 60 pounds. A real featherweight but a giant for work. 100% automatic priming. 25 ft. suction lift. 4 cycle engine. Many other distinctive features. Many other models.

SIZES 1¼ TO 10 INCHES.

A FEW STERLING USERS:

Oklahoma Contracting Corp.
Natural Gas Pipe Line Co. of America.
Smith Bros. Construction Corp.
Sinclair Prairie Pipe Line Co.
Sheehan Pipe Line Construction Co.
Cities Service Gas Company.
Humble Pipe Line Company.
The Fluor Corporation, Ltd.
Truman-Smith Construction Company.
E. H. Reeder Construction Company.
Bibb Contracting Company.
Panhandle Eastern Pipe Line Company.
Williams Brothers, Inc.

Write Today For Catalog.

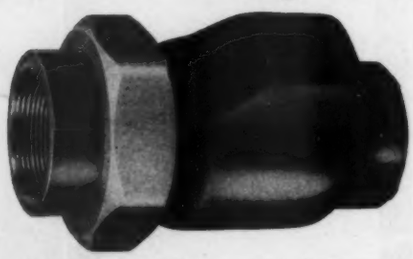
STERLING MACHINERY CORPORATION

411-13 Southwest Blvd., Kansas City, Mo.

CATAWISSA

Single Union Swing Check Valves

for 250 lbs. working steam pressure and 400 lbs. oil, water, and gas pressure.



Detail showing easy accessibility to working parts of valve.

Standard or regular valves for general, horizontal, or vertical use.

Catawissa Forged Steel Standard Unions, ball to angle seat, the most efficient and economical union for general service.

Having a union connection on the outlet end the line can be broken at the valve, eliminating the necessity of a union and nipple in the line. Catawissa single union check valves are tested to 1,000 lbs. non-shock hydrostatic pressure. Hitensilay flapper and assembly—Refax metal bodies with integral seats—Udylited for use with corrosive fluids. Sizes ¾" to 3".

Ask for Bulletin 5

Mid-Continent distributors OIL WELL SUPPLY CO.—Stocked by leading supply jobbers in all other oil fields.

THE CENTRAL FORGING CO., CATAWISSA, PA.

Forged Steel Unions—Union Swing Check Valves.

than 60,000,000 feet by erecting a gas holder of 10,000,000-foot capacity in the former area and another of 8,000,000-foot capacity in the latter city. This line is 280 miles long and extends northward from the Buttonwillow gas field in Kern County to Milpitas, where one branch goes north along the peninsula and another up the east side of San Francisco Bay to Oakland, Alameda, Berkeley, Richmond and adjacent communities. From Buttonwillow to Kettleman station, a distance of 49.8 miles, the main transmission line of the Pacific Gas & Electric Co. consists of 16-inch welded pipe. From Kettleman Hills to Panoche Junction, 39.8 miles, the pipe has a diameter of 22 inches, and from Panoche Junction to the Milpitas metering station via Tres Pinos, Hollister, Gilroy and San Jose, 109.5 miles, the line has a diameter of 20 inches. The west branch from Milpitas to San Francisco, 44.6 miles, and the east branch from Milpitas to Oakland, 36.4 miles, consists of 20-inch pipe. In 1935 the company constructed an additional 44 miles of welded 22-inch pipe from Milpitas to San Francisco and while this installation paralleled the original line it was located several miles west.

During the early stages, gas was delivered to the main trunk at Buttonwillow and Kettleman Hills at a pressure of approximately 400 pounds, but pressure was reduced by line friction and intermediate deliveries to approximately 50 pounds by the time the gas reached the San Francisco Bay region. Since completion of this line and drop in gas pressure at Kettleman Hills, the company has erected a compressor plant adjacent to Kettleman Hills and a booster plant between Kettleman and San Jose which increased the capacity of the line to approximately 125,000,000 feet per day. A large part of the gas purchased by Pacific Gas & Electric Co. is bought for approximately 8 cents per thousand feet, although the rate in some cases is based on the B.t.u. value and other factors. In addition to Pacific Gas & Electric Co., Southern California Gas Co. and Industrial Fuel Co. have pipe line connections with Kettleman Hills. Southern California Gas Co. has been delivering Kettleman gas into southern California territory since early in 1930 and Industrial Fuel Co. began deliveries November 17, 1931. Southern California Gas Co.'s Kettleman line is 20-inch and extends from the center of the Kettleman North Dome field in Kings County to the Elk Hills field and the Buena Vista section of the Midway-Sunset field of Kern County, 68.9 miles. This job was completed in 78 days or at the rate of approximately 4,700 feet per day and gas entered the new line on February 3, 1930. Two years later, on September 5, 1932, Southern California Gas Co. began making commercial deliveries of gas to San Diego Consolidated Gas & Electric Co. in San Diego. This was made possible by construction of an 80-mile 26-inch welded line from Huntington Beach in Orange County to Rose Canyon in the city of San Diego by Southern Counties Gas Co., subsidiary of Southern California Gas Co. Industrial Fuel Co.'s Kettleman to Los Angeles pipe line is 26-inch and likewise was a welded job.

California 1937 Construction

(Continued from Page 195)

pipe line facilities within a few miles. The Petrol Corp. has been contemplating installation of a new pipe line from the Gato Ridge field of Santa Barbara County to tidewater in the vicinity of Port San Luis, but has not definitely decided to undertake the work. It seems logical to assume that actual construction will be delayed pending the development of a crude oil potential in the Gato Ridge field which would be high enough to justify the expenditure necessary. It is quite possible, however, that a deal of some kind might be worked out with Hancock Oil Co. and R. R. Bush Oil Co., whereby both of these operators who have production in the Santa Maria Valley field might participate in operation of the projected line.

Pipe Lines and Banking Service

LIKE the arteries in the human body, Pipe Lines carry the life blood of the petroleum industry—transport vast quantities of crude oil from producing fields to tank farms and refineries; move billions of feet of natural gas to "city gates" and industrial plants—transport gasoline to great market centers and export terminals.

Great banks, like great pipe lines, are arteries of credit and finance—gathering deposits from thousands of customers; maintaining great reserves of cash and credit for financing business operations.

National Bank of Tulsa gathers deposits from thousands of firms and individuals throughout the United States, even in many foreign countries;—finances great oil operations throughout the Mid-Continent area. Through its adequate facilities, ample resources, the broad experience of its officers, legal and petroleum engineering departments, this bank is the source of constant, intelligent, prompt financial service to the oil industry.

NATIONAL BANK TULSA
NBT

NATIONAL BANK OF TULSA

The Oil Bank of America

Member Federal Deposit Insurance Corporation

Electric Welding of Pipe Lines Under Various Conditions

By HAROLD C. PRICE
Bartlesville, Okla.

Making tie-in weld on 14-inch gas line

Within the past 12 months the H. C. Price Co. has electric-welded over 1,200 miles of oil and gas pipe lines throughout the United States under more varied conditions of terrain and weather than in any previous year. Under present conditions, pipe lines must be laid quickly regardless of the season or the nature of the country in which they are being built. In the old days it used to be considered that welding operations could not be carried on in bad weather or in inaccessible portions of the country. This is all changed. The past year has seen pipe lines welded in the desert country, in bitter cold weather with the ground covered with snow and in the swamps of the South during the heavy rainy season.

Following are brief descriptions of some of the pipe lines welded under all sorts of conditions from good to bad. The Shell pipe line in California is an example of the best conditions. Some 245 miles of that 305-mile project were as nearly perfect as could be found any place in the United States. This good portion ran in the San Joaquin Valley from Bakersfield to Meganos. The country was absolutely flat. There were very few fences or road crossings. The line was laid in the summer and there was practically no rain. Every welding machine was mounted on its own truck. Under these conditions the maximum speed of construction was performed. Two gangs completed the 245 miles in 68 calendar days. However, under these seemingly perfect conditions there were still two extreme hazards encountered, that of heat and danger of fire. Temperature in the valley averaged 100 degrees in the shade. The men had to be carefully protected to prevent sunstroke. Large umbrellas were used over all of the welders, in addition to the usual medicinal preventatives. Portions of the valley were covered with fine dry grass. Once ignited, the fire could spread at a terrific speed over unlimited acreage. Extreme care had to be taken to prevent ignition of the grass from the sparks of the arc. The right of way was carefully cleared. Each welding unit was equipped with fire preventive apparatus. On the more dangerous portions of the line, a man equipped with a water pump and hose was assigned to each welder. His only duty was to watch for fires.

The conditions on the Hope Natural Gas 12-inch line in West Virginia were directly opposite to those of the Shell line in California. The Hope 12-inch line was 94 miles in length and the right of way was through mountains from start to finish. There were practically no level spaces. The country was so rough that only 20-foot pipe could be used. With a few exceptions, the entire line was laid by hand. The country was so rugged it was impossible to use the usual pipe line machinery. Three gangs were used and the line was completed in 90 working days. This was the first long line which was completely electric-welded by the stove-pipe method. The line was designed for very high pressure. If there was any doubt about the quality of position welds, this doubt was dispelled upon completion of this line, as only one small leak was found upon the final test.

Another example of extremely difficult conditions was the Humble gas line laid from Baytown, Tex., to Port Arthur, Tex. This was also a 12-inch high-pressure line 70 miles in length. It was laid during the heavy rainy season. Three gangs were used and the line was completed in 56 calendar days, which included 25 days of rain. The welding was also done by the stove-pipe method. The country along the Gulf Coast is flat and of swampy nature. During the period of this construction the entire line was a sea of mud. On many portions it was impossible to walk along the right of way and tractors had to be used as taxis to transport the men back and forth.

Another line on which the stove-pipe method was used, but under much better conditions, was the Phillips 94-mile 6-inch line in Kansas from Lyons to Thrall. The country was fairly level and as the line was laid during the summer, there was only the usual amount of rain. Excellent progress was made, although only one gang of five welders was used. The stove-pipe crew averaged 7,200 feet per day, despite the fact that old torch-cut pipe was used.

Without doubt, the most difficult welding job of the year was the Godfrey L. Cabot 14-inch gas line in northern New York state. Welding was performed under the usual roll-weld method. Construction began October 14. The first heavy snow arrived early in November and from that time until completion, the operations were continued during a bitterly cold season with the ground covered with snow most of the time. At times the weather would moderate, which only made matters worse, as when the temperature went above freezing the snow-covered ground would become impassable with mud and slush. Two gangs were used and the line was completed on February 1, 1937. Despite all these adverse conditions, not a single leak was found in the completed line.

Coming back across the country, the same welding crews worked on a 32-mile 10-inch gas line for the Mountain Fuel Supply Co. in southwestern Wyoming. This line was the most isolated project we encountered during the year. The line started about 30 miles south of Rock Springs, which was

(Continued on Page 215)

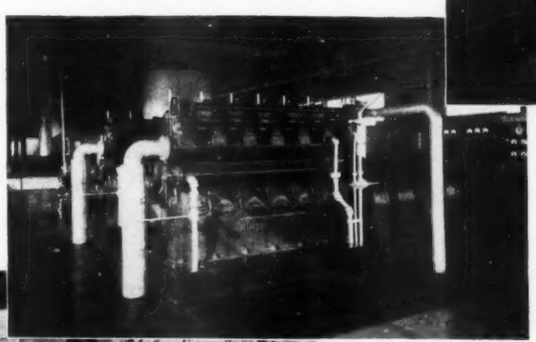
Laying 14-inch gas line for Godfrey L. Cabot, Inc., in northern New York last winter

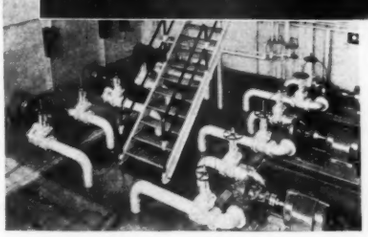
On the

PANHANDLE EASTERN PIPE LINE SYSTEM

from Texas to Detroit . . .

Right—Three of six Worthington 1300-hp. Gas Engine Gas Compressors . . . at Olpe, Kansas, Station





Worthington 180 hp. Vertical Gas Engine, for auxiliary service . . . at Pleasant Hill, Illinois, Station

Battery of Worthington Centrifugal Pumps, in jacket water and cooling tower service...at Pleasant Hill, Illinois, Station

27

WORTHINGTON COMPRESSORS TOTALLING 35,100 HORSEPOWER

are doing an outstanding job

IN addition to the main compressor units, there are 12 Worthington Vertical Gas Engines, 2160 total horsepower, in station service. These, with 72 jacket water and cooling tower centrifugal pumps, add further testimony to the enviable reputation of their builder.

GC7-3

WORTHINGTON PUMP AND MACHINERY CORPORATION

General Offices: **HARRISON, NEW JERSEY** - *Branch Offices and Representatives in Principal Cities throughout the World*

WORTHINGTON

Latest Pipe Line Construction Methods in Gulf Coast Area

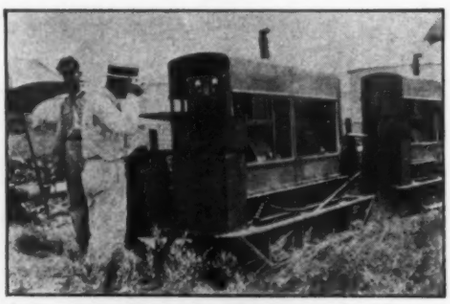
By W. MIKE MURPHY
Air Reduction Sales Co.

During this year, there has been an increased activity in pipe line construction in the Gulf Coast area and improvements in the methods used. A large part of the pipe laid has been removed from obsolete lines in other areas and reconditioned for additional service. It has been found most practical to concentrate the culled used pipe in yards equipped for cleaning, beveling, and reconditioning. The latter includes cutting out badly corroded sections, repairing corroded pits in the pipe wall with welding, and welding the short joints into lengths averaging approximately 40 feet.

It has also been found cheaper and productive of better results to paint and wrap the pipe for corrosion protection in the same yard. A large part of the new pipe has been ordered "mill-wrapped" in accordance with the pipe line owners specifications. Where the pipe has been shipped by water route and handling may damage wrapping, the pipe can be delivered to the yard of a contractor equipped for machine doping and wrapping.

With mill-wrapped pipe, there is less liability of lost time by construction gangs for the application of protective coatings, but the pipe must be handled as little as possible to avoid the loss of the advantage gained. The stringing of the pipe requires special equipment and particular care and the welding and laying operations must be completed with the least possible movement of the pipe. By insuring a good quality of pipe protection with mill wrapping a problem is added to construction operations that may upset production schedules if an attempt is made to handle the pipe in the same way as in laying bare pipe.

A large part of the wrapped pipe in the Gulf Coast area has been laid with the "stovepiping" procedure in which all of the welds are position welds. This method, which originated in the East Texas field with the laying of acetylene welded gathering lines, has been extended to the laying of arc-welded lines on the Gulf Coast by employing a specially designed "bell-hole" electrode.



Welder mounted on sleds

With arc-welding, as in the original procedure in stovepiping, the pipe is aligned continuously on skids over the open ditch and the first or stringer bead completed by two welders working on opposite sides of the aligned joint. Where bends are needed, road or creek crossings made, or slack loops dropped the welds are finished by these welders. The welding is completed by additional welders following the line-up gang and making the second and third beads in position. The wrapping on the pipe is protected by padding with sand bags between the pipe and skids. This procedure positively avoids the damage to wrapping and protective coatings which may result in the roll weld method of construction by rolling against or jumping from dollies.

All of the cleaning, doping and wrapping necessary when laying mill-wrapped pipe with the stovepiping method is approximately 12 inches for each length of pipe at the joint and including

This Message on our KRAFT PAPER

MECHANICALLY APPLIED COATING AND WRAPPING
AT THE PIPE MILL
ADDS YEARS TO THE LIFE OF ANY COATING
HILL, HUBBELL & CO.
DIVISION
GENERAL PAINT CORPORATION

Is Your GUARANTEE of a GENUINE MILL COATED JOB

High accomplishment should be distinguished from the commonplace. For that reason we label every foot of pipe so you may know it is a GENUINE HILL-HUBBELL mill coated job. All our Kraft paper carries our name on it to identify the quality workmanship under it. Coating and wrapping done without our name on the outside of the Kraft paper is NOT a HILL-HUBBELL job. STEEL PIPE coated at the Mills, MECHANICALLY, by the HILL-HUBBELL Process is the most efficient job of pipe protection known today. This process eliminates possibilities of human error and the dangerous risks caused by bad weather because coating is applied at the Mills, INDOORS.

BITURINE ENAMEL has a record of over 30 years of satisfactory service. Thousands of miles of steel pipe have been coated with BITURINE ENAMEL.

Three coats of Enamel, one wrapping of Felt, and one covering of Kraft paper are applied mechanically at ONE time with ONE labor cost. There are no bubbles, skips or holidays with the HILL-HUBBELL Process.

BUY STEEL PIPE,
Mill Coated and Wrapped at any of these Mills

Central Tube Company
Jones & Laughlin Steel Corporation
National Tube Company
Republic Steel Corporation
Spang, Chalfant & Co., Inc.
The Youngstown Sheet & Tube Company

This bulletin with many illustrations "shows how" it is done, —also contains prices. Write on your letterhead for copy.

GENERAL PAINT CORPORATION
HILL, HUBBELL & CO. • Division • Cleveland, Ohio
TULSA • SAN FRANCISCO • LOS ANGELES • OAKLAND • PORTLAND • SEATTLE • SPOKANE

the completed weld. With this method the production of welds is less per welder but the cost of additional welders is often offset by the reduction in men and equipment required in the complete gang. The rate of progress is dependent only on

Welding 6-inch gas line

the rate of alignment and can be made to fit the ditching conditions which is one of the greatest variables along the Gulf Coast. The total cost of laying a wrapped line is considerably less by this method.

An 8-inch gasoline line was laid by the stovepiping procedure by Latex Construction Co. for a major pipe line company between Satsuma and Baytown, Tex., a distance of 40 miles, in 22 days. Welding was completed by Mulligan Welding Service Corp. in 19 days. The position welds were made with Wilson electrodes furnished to the welding contractor by Crutcher-Rolfs-Cummings. The newly developed electrode was introduced on this job and a specially designed arc-welding machine for pipe line construction. New pipe in 40-foot lengths was used in the line. The pipe was mill-wrapped with pipe line felts and enamels.

In August a 6-inch natural gas line was laid from Baytown to Harrisburg to serve the industrial area adjoining Houston. The stovepiping procedure was employed by Williams Brothers Construction Co., the general contractor, and Mulligan Welding Service Corp., the welding contractor. The pipe in this line was reconditioned used pipe mill-wrapped with pipe line lefts.

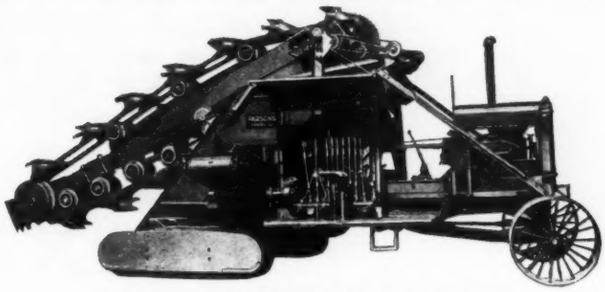
ELECTRIC WELDING

(Continued from Page 212)

the nearest town. It was necessary for the welders to make an average drive of 45 miles from and to the job each day over bad roads. Construction began on May 21, 1937, and on June 10, 4 inches of snow fell on the right of way. However, this soon cleared up and was the only bad weather encountered. The project was completed with one gang in 38 days.

As this is written, the largest job of the year is being completed, that is, 285 miles of 24-inch for the Panhandle Eastern Pipe Line Co. through Kansas, Missouri and Illinois. The line is alternately welded and coupled. On the Kansas section, which was quite level, machines were placed on trucks. Only one gang was used on this 147-mile section, which averaged 10,500 feet per day. We had expected considerable difficulty from dust storms in western Kansas, but the rains which handicapped the eastern end of the line helped out on the western end by laying the dust and packing the sand.

THE MOST POWERFUL AND DURABLE TRENCH DIGGER



THE PARSONS "35"

The exclusive features of this improved model were suggested by experienced pipe line contractors and engineers.

The results are far reaching and satisfactory. Send for the data which explains how digging costs are reduced. You will be interested in our "MODERN METHODS" proposition.

Send us description of your job, soil conditions, mileage, depths, widths, time limits, etc. Our field representatives are glad to co-operate.

THE PARSONS COMPANY
NEWTON, IOWA.
Over thirty years specialists in trench excavating equipment.
THERE IS A PARSONS TO SUIT EVERY JOB.

REPLACING SUBSTITUTE IN GAS LINE WITH MONO-CAST DOUBLEX SIMPLEX PIPE

THIS photo shows 12" Mono-Cast Doublex Simplex Centrifugal Pipe being installed in a gas distribution line by a prominent eastern gas company, replacing a substitute for cast iron pipe which failed on the job after only 12 years service. Note the flooded trench, and the line's proximity to an industrial plant. More and more is Doublex Simplex Pipe replacing perishable substitutes in gas lines—especially where construction is difficult and service conditions severe. Write for literature on this pipe which has set a new standard for cast iron pipe in gas transmission and distribution.

AMERICAN CAST IRON PIPE COMPANY
Birmingham, Alabama
Dallas Houston El Paso Pittsburgh Kansas City Chicago Minneapolis
New York City Cleveland Los Angeles San Francisco

J. P. DEVINE
MANUFACTURING CO., Inc.
(Home Office and Plant)
MT. VERNON, ILLINOIS

Petroleum and Chemical Process Equipment

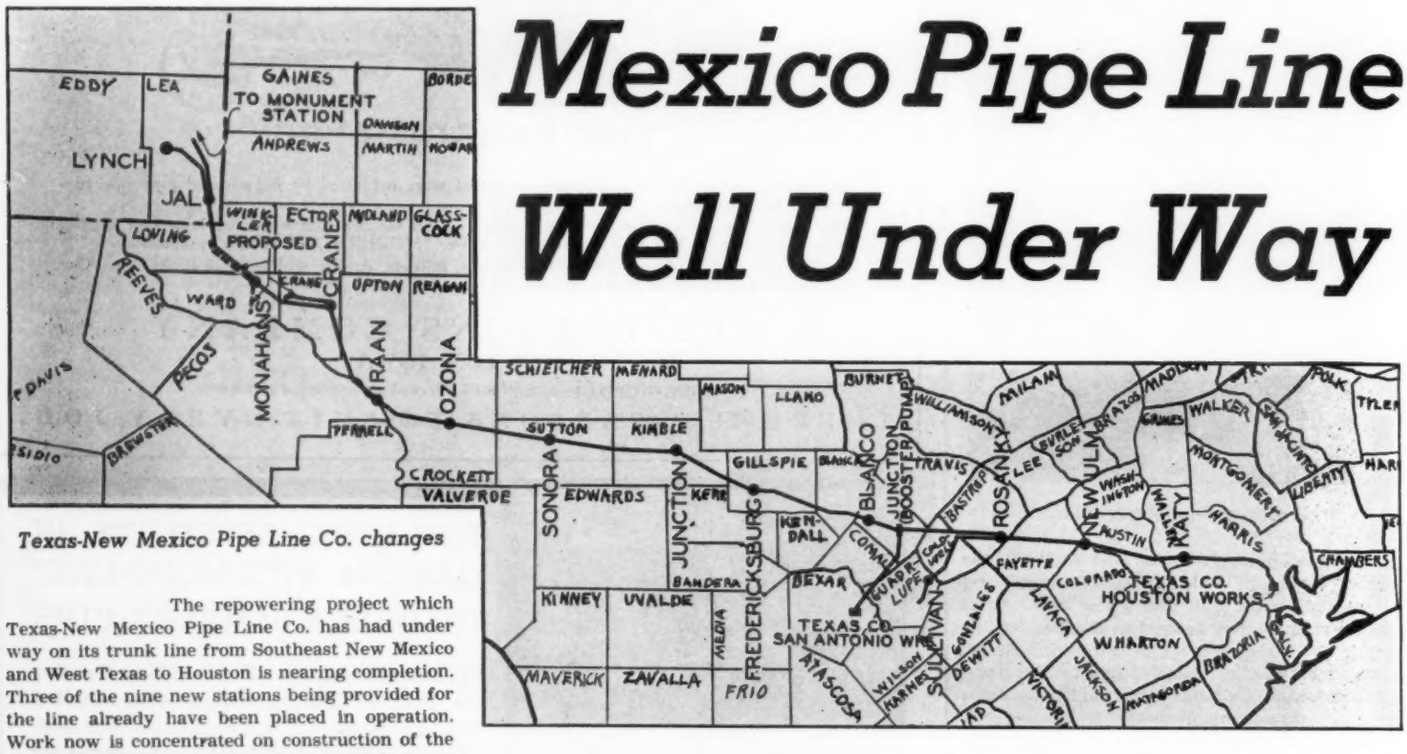
SALES OFFICES:

J. P. Devine Mfg. Co.,
205 East 42nd St.,
New York, N. Y.

J. A. Rossiter Co.,
P. O. Box 1095,
Houston, Texas

The Merrill Company,
343 Sansome Street,
San Francisco, Calif.

Repowering of Texas-New Mexico Pipe Line Well Under Way



Texas-New Mexico Pipe Line Co. changes

The repowering project which Texas-New Mexico Pipe Line Co. has had under way on its trunk line from Southeast New Mexico and West Texas to Houston is nearing completion. Three of the nine new stations being provided for the line already have been placed in operation. Work now is concentrated on construction of the six remaining new stations and on remodeling and enlarging of the three old stations. All stations are expected to be in full operation within the month.

With all new stations in operation and with the addition of 40 miles of looping between Jal, N. Mex., and Monahans, Tex., capacity of the line is being increased to 75,000 bbls. daily. When the line was acquired from the Texas Pipe Line Co. early this year it had a capacity of 30,000 bbls. with three stations in operation. Addition of the first three new stations of the present project late in July boosted capacity to 41,000 bbls. The remaining stations will provide the additional 34,000-bbl. capacity.

Nine New Stations

Ownership of the Texas-New Mexico Pipe Line Co., which was organized to operate the line, is held by Texas Corp., Consolidated Oil Co., Tide Water Associated Oil Co. and Empire Oil & Refining Co. Combined production of these companies and their connections in the Permian Basin district has made this increase in pipe line outlet capacity necessary.

The nine new stations replace stations abandoned several years ago when production decline due to curtailed development reduced pipe line capacity needs. When the line was placed in operation by Texas Pipe Line Co. in July, 1929, it had 13 stations. After the need for so much pipe line capacity ceased, only three stations were kept in operation, equipment of the other 10 stations being moved to other lines, principally in East Texas, which was booming at that time.

In replacing the abandoned stations, special consideration has been given to locating these stations to obtain the most effective distribution of power possible. Locations of former stations were disregarded when sites for the new stations were selected. Only two of the new stations are on sites of abandoned stations, these being at Iraan, Pecos County, and New Ulm, Colorado County. The others are at distances ranging from 1½ to 16 miles from sites of their respective abandoned locations.

Due largely to the more effective distribution of stations and power, the line will have 15,000 bbls. daily capacity greater than it originally had with one less station. The original capacity with 13 stations was only 60,000 bbls., but when the present project is completed, the line will have 75,000 bbls. capacity with 12 stations. The relocation of stations was such that replacement of one of the abandoned stations was made unnecessary.

Stations now in operation consist of Jal, the terminus of the line in Southeast New Mexico; Monahans, Ward County; Crane, Crane County; Ozona, Crockett County; Junction, Kimble County, and Rosanky, Bastrop County; Jal; Crane, 97 miles down the line, and Rosanky, about 346 miles further down the line and about 125 miles from the East Houston terminus, are the three stations originally on the line. The latter is the point where the lateral line serving the Darst Creek-Salt Flat area ties into the main line. The other three stations are those which have been completed in the present repowering project. Early completion of the latter stations was due to a concentration on their construction so additional capacity could be obtained for the line as quickly as possible.

New stations in process of completion are Iraan, Pecos County; Sonora, Sutton County; Fredericksburg, Gillespie County; Blanco, Hays County; New Ulm, Colorado County, and Katy, Waller County. Blanco station replaces one formerly located at San Marcus, 16 miles east. The Katy station replaces the abandoned Brookshire station, 7 miles west. At San Marcus, a junction for a small line supplying crude to Texas Co. refinery at San Antonio, is a small booster station.

Originally a station was located at Segovia, Kimble County, but in the present distribution of stations there is no room for it. Rebuilding of the Junction station 4 miles east of its former site, and the Fredericksburg station 12 miles west, eliminated need for the Segovia station, which was between the other two. A small local station at Wink, between Jal and Monohans, also is being abandoned.

All stations, except Jal which is a combination diesel-gas engine station, are being entirely diesel powered. Originally, all stations utilized electric power except Jal, Iraan, Junction and Rosanky. Crane, the only electric station which was left on the line when the other stations were abandoned several years ago, is being converted to diesel power.

Station Power

While all the stations are not identical in number of units, each will have a total of 1,200 hp. In some stations, the power is provided by two 600-hp. engines, while in others three 400-hp. engines are installed. This was governed by the equipment available, as most of the equipment came off the Sinclair Prairie Pipe Line Co. trunk line from the Mid-Continent to the East.

Two additional 300-hp. gas engine driven units have been installed at Jal station, the only station not entirely diesel powered. This equipment came from the Texas Pipe Line Co. abandoned Starr station in East Texas.

The main line consists of 472 miles of 12-inch pipe from Crane station to East Houston, the tidewater terminus, and 97 miles of 10-inch pipe from Crane westward to the Jal terminus. Forty miles of the latter stretch has just been looped with 12¾-inch pipe, 19 miles of this being from Crane station westward toward Monahans, and 21 miles from Monahans westward. A 6-inch lateral line has been completed from the South Ward area to Monahans, a distance of 11 miles. From the Jal station, small feeder lines serve various fields in Southeast New Mexico.

Personnel of Crude Oil Pipe Line Companies

A

Ajax Pipe Line Corp., National Bank of Tulsa, Tulsa, Okla.

Pres., Wm. A. McAfee, Cleveland, Ohio. *V.P.s*, J. R. Doles, Springfield, Mo.; Rawleigh Warner, 35 E. Wacker Drive, Chicago, Ill.; W. R. Finney. *Sec.*, M. R. Newcomer, Cleveland, Ohio. *Treas.*, W. J. Semple, Cleveland, Ohio. *Asst. Sec.*, C. L. Bushnell. *Asst. Treas.*, S. V. Kane. *Supt.*, R. H. Bowers, Landers Bldg., Springfield, Mo.

American Petroleum Co. (of Texas), Petroleum Bldg., Houston, Tex.

Pres., G. O. Irvine. *V. P.*, T. J. Arnold. *Sec.*, G. L. Townsan. *Treas.*, C. T. Carnes. *Mgr. Oper.*, J. B. Joyce. 46.2 miles.

Amsco Pipe Line Co., Heep Bldg., Corpus Christi, Tex.

Pres., J. L. Sullivan. *V. P.*, John D. Manley. *Sec.* and *Treas.*, T. S. Scibienski. *Supt.*, T. E. Johnson.

Anderson-Prichard Pipe Line Corp., 1000 Ramsey Tower, Oklahoma City, Okla.

Pres., L. H. Prichard. *V. P.*, J. Steve Anderson. *Sec.* and *Treas.*, P. H. Anderson. *Asst. Treas.*, Ray Winters. *Mgr. (Cyril Div.)*, George H. Burruss. *Mgr. (Okla. City Div.)*, Weston Payne. *Gen. Auditor*, D. R. Grable. *Supt. (Cyril Div.)*, John Bates, Cyril, Okla. *Supt. (Okla. City Div.)*, A. C. McColl. 48 miles.

Arcadia Beeline Co., Tylar, Tex.

Pres., G. A. Buder. *V. P.s*, Holiday Hayley and J. R. Daugherty. *Sec.*, Josephine Huey. *Treas.*, Holiday Hayley. *Gen. Supt.*, J. R. Daugherty. 14 miles.

Arkana Transit Corp., Shreveport, La.

Pres., J. S. Hasson. *V. P.*, D. W. Harris. *Sec.*, R. L. Benoit. *Treas.*, R. A. Burdick. *Gen. Mgr.*, E. B. Charlton, Haynesville, La. *Engr.*, L. Bilberry, Haynesville, La. 27 miles.

Arkansas Fuel Oil Co. (formerly Louisiana Oil Refining Corp.), Shreveport, La.

Pres., Vacant. *V. P.* and *Gen. Mgr.*, D. W. Harris. *V. P.s*, F. R. Coates; J. R. Munce; O. F. Holliday. *Sec.* T. J. Heard. *Treas.*, B. R. Muirhead. *Gen. Supt.*, A. H. Weyland. *Ch. Engr.*, H. T. Goss. *Pur. Agt.*, J. Lucas. *Mgr.*, G. L. Gano. *Oper. Supt.*, P. T. Thibodaux. *Dist. Supt.*, R. L. Waldron, Oil City, La.; C. O. Rhodes, Haynesville, La. 163 miles.

Arkansas Pipe Line Corp., Shreveport, La.

Pres., D. W. Harris. *V. P.s*, J. R. Munce; W. A. Jones; F. R. Coates. *Sec.*, T. J. Heard. *Treas.*, B. R. Muirhead. *Gen. Supt.*, A. H. Weyland. *Ch. Engr.*, H. T. Goss. *Pur. Agt.*, J. Lucas. *Mgr.*, G. L. Gano. *Oper. Supt.*, P. T. Thibodaux. *Dist. Supts.*, P. H. Duval, Greggton, Tex.; R. L. Waldron, Oil City, La. 86 miles.

Ashland Oil & Transportation Co., Second National Bank Bldg., Ashland, Ky.

Pres., Paul G. Blazer. *V.P.s*, W. H. Keffer; E. F. Wells. *Treas.*, E. W. Seaton. *Sec.* and *Gen. Counsel*, E. L. McDonald. *Pur. Agt.*, M. K. Lovell. 800 miles.

Associated Oil Co., 79 New Montgomery St., San Francisco, Calif.

Pres., William F. Humphrey. *V.P.s*, L. F. Bayer; B. I. Graves; J. H. Jenkins; L. D. Jurs; E. L. Shea. *V.P.* and *Treas.*, W. A. Sloan. *Sec.*, J. P. Edwards. *Asst. Sec.*, George Bevan. *Asst. Treas.*, J. J. Spenker. 873 miles.

Atlantic Pipe Line Co., 260 S. Broad St., Philadelphia, Pa.

Pres., J. W. Van Dyke. *V. P.s*, L. M. Goldsmith; Robert C. Tuttle; Robert H. Colley. *Sec.*, B. G. McKain. *Treas.*, Paul Shuman. *V. P.* and *Gen. Mgr.*, J. H. Wood, Jr., Magnolia Bldg., Dallas, Tex. *Gen. Supt.*, Ralph P. Paden, Magnolia Bldg., Dallas, Tex. *Ch. Engr.*, J. W. Williams, Magnolia Bldg., Dallas, Tex. *Asst. Ch. Engr.*, C. M. Southern, Magnolia Bldg., Dallas, Tex. *Supt. of Terminals*, L. S. Mobley, Box 838, Port Arthur, Tex. *Terminal Supts.*, D. H. Johnson, Box 838, Port Arthur, Tex.; A. C. Hunter, Box 39, Texas City, Tex.; W. D. Anderson, Box 588, Aransas Pass, Tex. *Dist. Supts.*, T. L. Hare, Box 1449, Longview, Tex.; S. H. Killian, Box 209, Goose Creek, Tex. *Div. Supts.*, J. L. McGrew, Box 1190, Midland, Tex.; D. M. Blackstock, Box AA, Refugio, Tex. *Maintenance Supt.*, R. E. Love, 1503 Main Street, Temple, Tex. 1,374.9 miles.

Atlas Pipe Line Corp., Atlas Bldg., Shreveport, La.

Pres., E. R. Ratcliff. *V.P.*, B. H. Gray. *Sec.* and *Treas.*, B. F. Connolly. *Asst. Treas.*, J. L. Pate. *Gen. Pipe Line Supt.*, H. M. Arthur. *Dist. Supt.*, H. M. McDonald, Box 545, Longview, Tex. *Ch. Engr.*, E. A. Meagher. *Pur. Agt.*, R. W. Nix.

B

Bachmann Petroleum Corp., 1841 E. Twenty-ninth St., Long Beach, Calif.

Pres. E. O. Bachmann. *V. P.*, D. S. Jeppson. *Sec.* and *Treas.*, John G. Bachmann.

Baird Refining Co., Baird, Tex.

Pres., M. G. Blalock. *Sec.*, R. P. Hargis. *Treas.*, Dallas C. Biggers. *Gen. Mgr.*, Sylvester Dayson.

Barnsdall Pipe Line Co., Tulsa, Okla.

Pres., E. B. Reeser. *V.P.s*, D. R. Snow; R. E. Sleppy. *Sec.*, Jas. A. Dunn. *Treas.*, L. D. Messner. *Supts.*, H. E. Ammerman, Victoria, Tex.; J. A. Fletcher,

Motor-driven field transfer pump on Phillips Pipe Line Co.'s system located near Wichita, Kans.

When You Need

Pipe Line Construction

Remember that . . .

SHEEHAN'S practical experience in pipe line construction always insures the work being done in accordance with the best methods.

Sheehan Pipe Line Construction Co.

Tulsa, Okla.

R. J. Sheehan — John B. Sheehan

REECE E. McGEE

•

PIPE LINE CONTRACTOR

•

BLACKWELL OKLA. — OXFORD NEBR.

Gladewater, Tex. *Foreman*, W. L. Ballow, Lake Charles, La.

Beacon Oil & Refining Co., Henderson, Tex.

Pres., T. P. Cannon. *V. P.*, Alice M. Roberts. *Sec.* T. A. Garnett. *Treas.*, T. P. Cannon. *Supt.*, L. H. Barbee. 16.5 miles.

Bell Oil & Gas Co., Tulsa, Okla.

Pres., S. L. Lubell. *V. P.s*, M. L. Freese; I. A. Anson. *V. P.* and *Gen. Mgr.*, Albert Finston. *Sec.* and *Treas.*, Benedict I. Lubell. *Auditor*, Ben P. Piepgrass. *Traf. Mgr.*, C. E. Cadieux. *Sales Mgr.*, L. H. Deatherage. *Pur. Agt.*, J. H. Naron. *Pipe Line Supt.*, B. F. Gilchrist, Burkburnett, Tex.

Big Spring Pipe Line Co., Big Spring, Tex.

Pres., Joseph Edwards. *V. P.*, R. T. Piner. *Sec.*, G. H. Hayward. *Supt.*, J. H. Edwards.

Big West Oil Co. of Montana, 617 Hutton Bldg., Spokane, Wash.

Pres., L. R. Hawley. *V. P.*, C. P. Lund. *Sec.* and *Treas.*, John E. Orr. *Asst. Sec.* and *Treas.*, M. D. Prince. 26 miles.

Bradford Oil Refining Co., Bradford, Pa.

Pres., E. R. Lederer. *V. P.*, F. D. Korner. *Sec.* and *Treas.*, H. G. Barcroft. *Asst. Sec.*, H. B. Newbern. *Asst. Treas.*, C. C. Jacobsen, Jr. *Plant Mgr.*, C. A. Barrere. *Supt.*, J. J. Costello. 53 miles.

Bradford Pipe Line Co., Box 538, Tyler, Tex.

Pres., H. B. Harter. *V. P.*, R. E. Hall. *Sec.* and *Treas.*, J. Allen Bean. *Supt.*, Charles L. Hopkins, Joinerville, Tex. *Asst. Supt.*, V. L. Bartley, Joinerville, Tex. 5.6 miles.

C

California Co., The, 225 Bush St., San Francisco, Calif., (formerly Standard Pipe Line Co.).

Pres., K. R. Kingsbury. *V. P.s*, W. H. Berg; R. K. Davies; M. E. Lombardi; G. E. Kennedy. *Sec.*, B. W. Letcher. *Treas.*, V. F. Palmer. *Mgr. Pipe Line Dept.*, H. N. Kuechler. *Asst. Mgr. Oper.*, Stuart Mosier. *Asst. Mgr. Maintenance*, J. S. Grepe, Jr. *Auditor*, W. R. Jaques. *Gen. Supt. Pipe Line Dept.*, J. J. Wilt, Box 1760, Bakersfield, Calif. *Asst. Gen. Supt.*, C. A. Swigart, Box 1760, Bakersfield, Calif. *Supt. of Maintenance*, F. A. Johnson, Box 1760, Bakersfield, Calif. *Supt. Oper. Midway Div.*, E. T. McMahon, Drawer F, Taft, Calif. *Supt. Oper. Kettleman-Estero Line* and *Estero Ter.*, L. E. Joses, Box 216, Morro Bay, Calif. 67.6 miles.

Caminol Co., Ltd., The, 112 W. 9th St., Los Angeles, Calif.

Pres., C. B. Colby. *V.P.* and *Gen. Mgr.*, R. E. Hines. *Sec.* and *Treas.*, T. Lipps. *Gen. Supt.*, R. C. Colvin. *Supt. Pipe Lines*, M. Mueller. *Supt. Santa Fe Springs Refinery*, D. H. Lewis. *Supt. Hanford Refinery*, T. Coulson. 7.5 miles.

Cardinal Pipe Line Corp., 2121 Alamo National Bldg., San Antonio, Tex.

Pres., George C. Sanford. *V. P.*, Frank C. Paine. *Sec.*, Walter J. Buzzini, Jr. *Treas.*, Walter J. Buzzini. *Gen. Supt.*, George B. Pickett. *Sta. Engr.*, T. C. Lasater, Whitsett, Tex.

Chalmette Petroleum Corp., 1904 American Bank Bldg., New Orleans, La.

Pres., B. C. McClellan. *Exec. V.P.*, D. B. Williams. *Senior V.P.*, Chas. Leftwich. *Sec.* and *Treas.*, R. P. Batson. *Auditor*, L. E. Vivien. *Ref. Supt.*, J. C. Senter. *Ch. Chem.*, Leo P. McCurnin.

Champlin Refining Co., Enid, Okla.

Pres., H. H. Champlin. *V. P.*, J. N. Champlin. *Sec.* and *Treas.*, D. W. Cotton. *Pur. Agt.*, L. E. Noble. *Pipe Line Supt.*, E. G. Wilmoth. 300 miles.

Col-Tex Refining Co., 1000 Ramsey Tower, Oklahoma City, Okla.

Pres., L. H. Prichard. *V. P.*, J. Steve Anderson. *Sec.* and *Treas.*, P. H. Anderson. *Asst. Treas.*, Ray Winters. *Mgr.*, George H. Burruss. *Gen. Auditor*, D. R. Grable. *Pur. Agt.*, W. M. Sturges. *Pipe Line Supt.*, William Brookover, Colorado, Tex. 70 miles.

Comanche Pipe Line Co., Monahans, Tex.

Mgr., J. C. Ratliff. *Supt.*, J. C. Ratliff. *Ch. Clerk*, W. H. Waldrop. *Ch. Engr.*, T. B. Marris, Jr. 30 miles.

Constantin & Co., Kilgore, Tex.

Pres., Eugene Constantin. *V. P.*, Jewell Constantin. *Supt.*, O. B. Cockrill. *Asst. Supt.*, Tony V. Hugo.

Continental Pipe Line Co., Ponca City, Okla.

Pres., Dan Moran. *V. P.s*, J. G. Dyer; G. F. Smith. *Sec.*, A. C. Frazer. *Treas.*, G. F. Smith. *Mgr.*, J. G. Dyer. *Asst. Mgr.*, M. H. Shanahan. *Dist. Supts.*, A. C. Wilkinson; E. O. Sturm, Wichita Falls, Tex.; Neil Stallard, Texon, Tex. 1,383.82 miles.

Cosden Pipe Line Co., Cosden Bldg., Tulsa, Okla.

Pres., Jacob France. *V. P.s*, J. C. Denton; G. O. Moody. *Sec.* and *Treas.*, Charles Klein. *Asst. Sec.* and *Asst.*

Treas., A. D. Kneale and E. M. Rouzer. *Gen. Supt.*, J. A. Deyhan. *Div. Supts.*, S. I. Ford; J. M. Linehan. *Dist. Foremen*, W. A. Smith, Drumright, Okla.; H. H. Thompson; J. P. Ellis, Wewoka, Okla.; W. C. Wren, Hominy, Okla. *Ch. Engr.*, F. E. Pyeatt, Jr. 1,240.11 miles.

Coutts Pipe Line Co., Ltd., The, 8 Cameron Block, Calgary, Alberta, Canada.

Pres., William C. Fisher. *V. P.*, G. M. Plotke. *Sec.*, D. P. McDonald. *Engr.*, G. M. Plotke, Sweetgrass, Mont. 6½ miles.

Crown Central Petroleum Corp., P. O. Box 1759, Houston, Tex.

Pres., Henry A. Rosenberg, 803 American Bldg., Baltimore, Md. *V.P.*, H. S. Lane. *Sec.*, James T-B. Bowles, Baltimore, Md. *Asst. Sec.*, S. K. Dawhon. *Treas.*, S. K. Waters. *Supt.*, R. S. Myers. *Sales Mgr.*, Jesse Stickel, 420 Lexington Ave., New York, N. Y. *Pur. Agt.*, David Hutchison.

Crude Oil Pipe Line Co., 632 Bedell Bldg., San Antonio, Tex.

Pres., E. L. Buckley. *V. P.*, Claude Buckley. *Sec.* and *Treas.*, Helen Sanders. *Supt.*, M. D. Altgelt. *Asst. Supt.*, J. T. Riley. *Office Mgr.*, Clarence Allen. *Supt.*, D. E. Gantt (Freer district). *Asst. Supt.*, J. M. Corley (Freer district). *Gaugers*, C. G. Anderson; J. C. Payne; W. B. Ward; C. L. Bandy (Freer district). *Sta. Opers.*, J. S. Smith; J. E. Cofer; H. W. Dornhoefer (Freer district). *Ch. opers.*, A. I. Miller, San Diego station; C. F. Ballard, Banquette station; Roy Davis, Robstown station. *Operators*, L. T. O'Bryant, San Diego station; Harvey Megerly, San Diego station; W. F. Kruger, Alice station; Don Monroe and Gail Hine, Banquette station; Bill McCaleb, Robstown station; Bob Schryer, Robstown station. *Pumpers*, W. D. Kruger and L. E. Peterson, Alice station. 143 miles.

Crusader Pipe Line Co., 908 Peoples Bank Bldg., Tyler, Tex.

Pres., E. C. Laster. *V. P.*, D. E. Pyburn. *Sec.*, Eugenia F. Laster. *Supt.*, R. J. White, Box 627, Joinerville, Tex.

D

Danciger Oil & Refineries, Inc., P. O. Box 670, Fort Worth, Tex.

Pres., Dan Danciger. *V. P.s*, Jack Danciger; A. Danciger. *V. P.* and *Treas.*, Joe Danciger. *Sec.*, J. E. Baeth. *Gen. Supt.*, W. D. McIntyre, Hilton Hotel, Abilene, Tex.

Deep Rock Oil Corp., Atlas Life Bldg., Tulsa, Okla.

Trustee, H. N. Greis. *Mgrs.*, A. L. Dade; J. H. Tubbs. *Supts.*, Isaac Biddle, Bristow, Okla.; M. L. Eckley, Drumright, Okla.; G. D. Biddle, Seminole, Okla. 500 miles.

Derby Oil Co. (Pipe Line Dept.), Wichita, Kans.

Ch. Bd. and *Gen. Mgr.*, A. L. Derby. *V. P.*, E. C. Moriarty. *Sec.*, E. Wasser. *Treas.*, E. C. Claiborne. *Supt.*, John H. Schell. *Asst. Supt.*, L. E. Woods. *Div. Foreman*, E. L. Edwards. *Ch. Engr.*, C. W. Winson. *Ch. Gauger*, Bert Pegg.

Driscoll Pipe Line Co., The, 632 Bedell Bldg., San Antonio, Tex.

Owner, E. L. Buckley. *Office Mgr.*, Clarence Allen. *Supt.*, M. D. Altgelt. *Asst. Supt.*, J. T. Riley. 16 miles.

Dunigan Brothers, Breckenridge, Tex.

Pres., James B. Dunigan. *V. P.*, E. J. Dunigan, Jr., Pampa, Tex. 3.5 miles.

E

Eason Oil Co., Bass Bldg., Enid, Okla.

Pres., T. T. Eason. *V. P.*, L. D. Hinman. *Sec.* and *Treas.*, T. W. Eason. *Sales Mgr.*, R. H. Rowland. *Ref. Supt.*, P. G. Moranville. *Engr.*, Joe Chastain, Box 4008, Capitol Hill station, Oklahoma City, Okla. *Pipe Line Supt.*, M. E. Lovelace, Crescent, Okla. 100 miles.

East Texas Refining Co., Dallas, Tex.

Pres., F. W. Burford. *V. P.*, John J. Thomas. *Sec.*, John R. Scott. *Treas.*, E. V. Campbell. *Supt.*, J. R. Mickle. *Foreman*, Will Holmes. *Dist. Gaugers*, W. A. Myers; C. L. Craker. 90 miles.

El Dorado Refining Co., El Dorado, Kans.

Pres., Charles G. Yankey. *V. P.s*, R. H. Bradford; T. A. Helling. *Sec.*, George J. Peterschmidt. *Treas.*, R. H. Bradford. *Supt.*, G. C. Anderson. 30 miles.

Empire Pipe Line Co., Bartlesville, Okla.

Pres., H. R. Straight. *V. P.s*, W. A. Sinsheimer; A. W. Ambrose. *Mgr.*, A. N. Horne. *Asst. Mgr.*, W. A. Fisher. *Sec.*, C. E. Murray. *Asst. Treas.*, A. C. Kleinschmidt and Lloyd A. Lynd. *Ch. Dispatcher*, C. H. Zink. *Div. Supts.*, C. A. Mason, Eldorado, Kans.; Thomas Cole, Jr., Madison, Kans.; T. J. Lanagan, Cushing, Okla.; Joe Ham, Oklahoma City, Okla.; N. G. Moore, Gladewater, Tex. *Asst. Supts.*, P. O. Teter, Gladewater, Tex.; J. W. Fagan, Ponca City, Okla.

THE TRUMAN-SMITH CONSTRUCTION CO.

PIPE LINE CONTRACTORS

"SINCE 1919"

•

PIPE LINE CONSTRUCTION and RECONDITIONING

General Office
ELDORADO, KANSAS

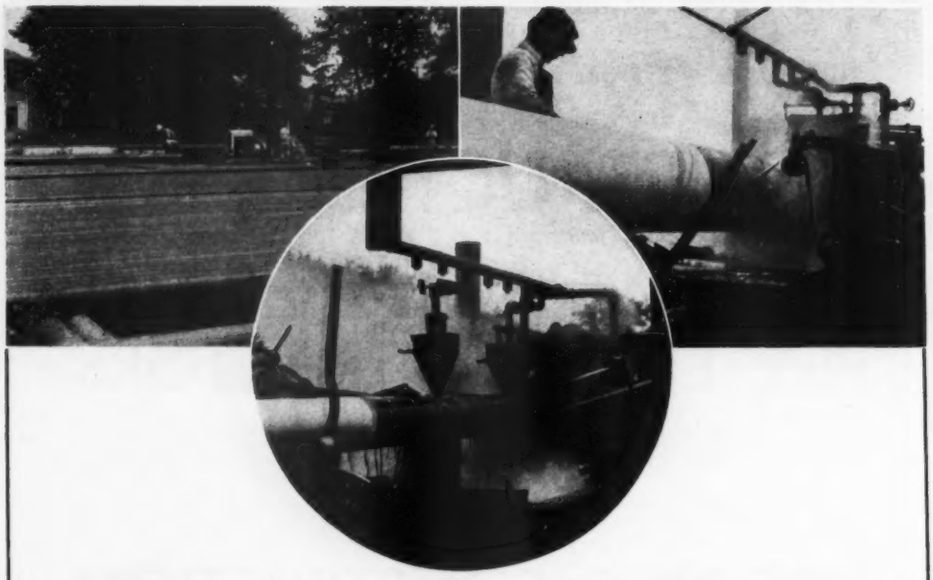
RENEW your subscription NOW!

J. F. PRITCHARD & CO.

General Oil Field and Pipe Line Construction

H. T. HOLLAND, Jr.
Manager Pipe Line Department

KANSAS CITY - - - - - - TULSA



Protecting Line Pipe Today to do the job in years to come

CLEANING

●

COATING

●

WRAPPING

With the most modern facilities for CLEANING . . . . . COATING . . . . . WRAPPING of Line Pipe, whether it be New or Used, we are serving the entire Gulf Coast and Mid-Continent territory with a capacity of 30,000 feet daily.

Our Houston plant, all under shelter, is served by rail and water facilities, and caters primarily to small diameter pipe; however, 5 complete portable units are available to take care of any size pipe, either new or used, at a central location on any job.

Our operations permit your inspection of the work at any time during the progress of the job.

"Dependable Underground Pipe Protection"

MAYES BROTHERS INCORPORATED

"Any Coating Specification"

PLANT: Wallisville Road and H. B. & T. Tracks

HOUSTON, TEXAS

PIPE LINE CONSTRUCTION CO.

WHITE DEER

PIPE LINE CONSTRUCTION CO., INC.

PIPE LINE CONTRACTORS

1142 SOUTH EAST 29 STREET

OKLAHOMA CITY, OKLAHOMA

Master Mech., William Bayman, Ponca City, Okla. *Ch. Gauger*, A. E. Stewart, Oklahoma City, Okla. 847 miles.

Eureka Pipe Line Co., Oil City, Pa.

Pres., Allan T. Towl. *V. P.s*, J. M. Tussey; E. W. Macklin. *Sec.*, E. W. Ziegler. *Treas.*, J. M. Tussey. *Directors*, Allan T. Towl; H. C. Dorworth; W. P. Norris; E. W. Macklin; D. L. Thomas.

Exchange Petroleum Corp., The, Albany, Tex.

Pres., A. A. Spencer. *Sec.* and *Treas.*, H. A. Spencer. *Supt.*, C. C. White. 6 miles.

F

Fair Gathering System (R. W.), Tyler, Tex.

Pres., R. W. Fair. *V. P.*, Mrs. R. W. Fair. *Sec.*, C. M. Pope, Jr. *Div. Supts.*, Gus Arnold, Arp, Tex.; R. Craig, Kilgore, Tex. 6 miles.

Falcon Pipe Line & Purchasing Co., 813 Sterling Bldg., Houston, Tex.

Pres., James P. Nash, Austin, Tex. *V. P.*, E. Horner. *Sec.* and *Treas.*, Miss Ilarae McKinney. *Field Supt.*, Freeman McKinney, Pettus, Tex.

Fargo Western Oil Co., 431 Wyoming National Bank Bldg., Casper, Wyo.

Pres., W. D. Weathers. *V. P.s*, E. J. French; Ben Hunsaker. *Sec.* and *Treas.*, M. R. Barrett. *Field Supt.*, C. J. Galusha. 22½ miles.

Franklin Pipe Co., Ltd., Franklin, Pa.

Ch. of Bd., D. W. Grant. *Pres.* and *Gen. Mgr.*, Dohrman S. Grant. *Sec.* and *Treas.*, Martha M. Livingston. 5 miles.

Frontenac Pipe Line Co., Peoples National Bank Bldg., Tyler, Tex.

Pres., James A. Wales. *V. P.*, John Warren. *Sec.*, H. B. Morris. *Treas.*, Lucille Mardock. *Supt.*, D. W. Johnson, Box 1044, Kilgore, Tex.

Frontier Oil Co., 615 Insurance Bldg., San Antonio, Tex.

Pres., Alexander Boynton. *V. P.*, Anna Boynton. *Foreman*, A. B. Higginbotham. 7 miles.

G

General Pipe Line Co. of California, Los Angeles, Calif.

Pres., A. L. Weil. *V. P.s*, R. A. Sperry; S. J. Dickey; E. L. Adams. *Sec.*, D. W. Woods. *Treas.*, W. Cunningham. 795 miles.

Glacier Production Co., Butte, Mont.

Pres., F. M. Kerr. *V. P.*, F. W. Bird. *Sec.*, S. P. Hogan. *Treas.*, J. R. Thomas. *Gen. Mgr.*, F. W. Bird. *Asst. Gen. Mgr.*, R. D. Smith. *Field Mgr.* and *Geo.* J. E. Hupp. *Gaso. Plant Supt.*, E. M. Parkin. *Gas Field Supt.*, M. A. Hardie, Sr. *Drlg. Supt.*, Tom Chew. *Asst. Geo.*, James McCourt. *Oil Prod. Supt.*, R. E. Lee. 88 miles.

Gladewater Refining Co., Gladewater, Tex.

Pres., C. R. Starnes. *V. P.*, Glenn Smith. *Sec.* and *Treas.*, E. L. Ames. *Supt.*, W. G. Maness. *Foreman*, C. H. Mathews.

Globe Oil & Refining Co., Union National Bank Bldg., Wichita, Kans.

Pres., I. A. O'Shaughnessy. *V. P.*, F. L. Jehle. *Sec.*, R. E. Everett. *Supt. of Pipe Lines*, F. A. Smalley, Blackwell, Okla. *Asst. Supt. of Pipe Lines*, J. M. Hoover, Blackwell, Okla. *Dist. Supts.*, F. W. Emmerson, 500 W. Eubanks, Oklahoma City, Okla.; J. A. Smith, Galva, Kans. *Dist. Foremen*, Grover Ford, Blackwell, Okla.; Carl Holcomb, Galva, Kans. *Ch. Clerk*, E. E. Bartolina, Blackwell, Okla. 138 miles.

Golden Bear Oil Co., 325 W. Eighth St., Los Angeles, Calif.

Pres., S. R. Roseberg. *V. P.s*, J. M. Feldman; C. P. Prewett. *Sec.* and *Treas.*, Louis L. Swarthe. *Ref. Supt.*, M. B. Pardew, Box 846, Oildale, Calif. *Asst. Supt.*, N. G. Davidson, Box 846, Oildale, Calif.

Grayburg Pipe Line Co., 1419 Smith-Young Tower, San Antonio, Tex.

Pres., R. D. Brown. *V. P.s*, Claude V. Birkhead, Stanley Zahn. *Sec.* and *Treas.*, Arthur D. Kohler. *Supts.*, Lowell Cude, Somerset, Tex.; Tom A. Smith, Sequin, Tex. 22.41 miles.

Gulf Refining Co., Houston Pipe Line Division, Gulf Bldg., Houston, Tex.

Pres., J. F. Drake. *V.P.s*, W. B. Pyron; E. C. Kincade; C. R. Minor, Shreveport, La. *Sec.*, W. J. Guthrie, Tulsa, Okla. *Treas.*, J. E. Nelson, Tulsa, Okla. *Gen. Supt.*, N. H. Perry. *Ch. Engr.*, C. M. Rosebrugh. 3,650 miles.

Gulf Refining Co. (Tulsa Pipe Line Division), First National Bank Bldg., Tulsa, Okla.

Pres., J. F. Drake, Pittsburgh, Pa. *V.P.s*, E. C. Bothwell; Chas. Buerger; W. V. Hartmann, Pittsburgh,

JONES & BROOKS, INC.
PIPE LINE CONTRACTORS

517 INSURANCE BLDG. PHONE 7-4111 OKLAHOMA CITY, OKLA.

This camera view shows a section of job recently completed through Missouri by Jones & Brooks, Inc.

O. C. WHITAKER, INC.

PIPE LINE and
ELECTRIC WELDING CONTRACTORS

OIL, GAS and GASOLINE PIPE LINE
CONSTRUCTION and RECONDITIONING

General Office:
Dan Waggoner Building,
FORT WORTH, TEXAS

2441 East King St., Tulsa, Okla.

Pa.; Rush Greenslade, Tulsa, Okla.; E. C. Kincade, Houston, Tex.; B. P. Newton; W. B. Pyron, Houston, Tex.; C. R. Minor, Shreveport, La. *Sec.*, W. J. Guthrie. *Treas.*, J. E. Nelson. *Gen. Supt.*, E. T. Gatrell. *Asst. Gen Supt.*, J. N. Hunter. *Div. Supts.*, J. R. Murphy; P. L. Reichard. *Asst. Div. Supt.*, Arthur Ray, 6304 E. Washington St., Indianapolis, Ind. *Ch. Dispatcher*, H. G. Bard. *Master Mech.*, R. E. Trumbull. *Supt. Tel. and Tel.*, Harry Jones. *Supt. Tank Constr.*, Tom Ryan, Box 385, Jenks, Okla. *Dist. Foremen*, E. M. Dalton, Box 266, Cleveland, Okla.; A. H. Detrie, R.F.D. No. 1, Kaw, Okla.; S. P. Duck, Box 308, Jenks, Okla.; J. B. Heard, Box 1667, Hobbs, N. Mex.; Arch Miller, Box 795, Frederick, Okla.; H. J. Thomas, Box 1187, Drumright, Okla.; E. C. Estes, Box 632, Seminole, Okla. *Pump Sta. Foremen*, E. E. Swanson, R.F.D. No. 1, Box 167-A, Cambridge City, Ind.; T. C. Carlisle, Box 216, Pawnee, Okla.; F. E. Hart, Box 116, Jenks, Okla.; P. R. Swinney, Box 990, Henryetta, Okla.; Gus Mager, Box 193, McAlester, Okla. *Running Ch. Engrs.*, K. S. Slagle, R.F.D. No. 2, Box 64, Pryor, Okla.; W. M. Prather, R.F.D. No. 2, Box 112, Anderson, Mo.; W. A. Hopson, R.F.D. No. 1, Box 171-A, Monett, Mo.; H. D. Key, R.F.D. No. 2, Box 89-G, Springfield Mo.; H. B. McCullough, Gen. Del., Nebo, Mo.; C. B. Flippo, Star Route, Steelville, Mo.; J. J. Vaughn, Box 56, Valmeyer, Ill.; Oliver Forbes, R.F.D. No. 1, Breese, Ill.; G. H. Crawford, R.F.D. No. 1, Box 130, Edgewood, Ill.; W. L. Berry, R.F.D. No. 2, Hutsonville, Ill.; R. H. Gray, R.F.D. No. 1, Poland, Ind.; J. C. Brown, R.F.D. No. 1, Box 187, Greenwood, Ind. 1,512-64 miles.

H

Hancock Oil Co. of California, The, 2828 Junipero Ave., Long Beach, Calif.

Pres., Will J. Reid. *V. P.s*, George P. Deane; Ernest E. Pyles. *Sec.*, John W. Hancock. *Treas.*, William T. Hancock. *Pipe Line Supt.*, Lloyd C. De Harte. *Prod. Supt.*, George Arnold. *Prod. Foremen*, Gerald B. Rusk; Walter Bell, Route 5, Box 261, Bakersfield, Calif. 42½ miles.

Healdton Pipe Line Corp., 1012 Tradesmen's National Bank Bldg., Oklahoma City, Okla.

V. P., H. L. Briggs. All lines shut down.

Humble Pipe Line Co., Humble Bldg., Houston, Tex.

Pres., R. V. Hanrahan. *V.P.* and *Gen. Supt.*, J. A. Neath. *Treas.*, C. D. Voss. *Sec.* and *Asst. Treas.*, J. M. Monaghan. *Comptroller*, N. V. Truly. *Auditor*, S. G. Loy. *Asst. Gen. Supt.*, O. Q. Lomax. *Ch. Engr.*, H. M. Stevenson. *Asst. Ch. Engr.*, A. E. Pecore. *Civil Engr.*, J. C. Robertson. *Pur. Agt.*, H. M. Lingle. *Supt. Tel. and Tel.*, R. M. Bayless. *Supt. Rt. Way and Claim Dept.*, Gus Kellogg. *Tank Supt.*, J. B. Harvey, *Paint Supt.*, Carl J. Smith. *Welding Supt.*, E. D. Brown. *Master Mech.*, J. W. Holtz. *Ch. Warehouseman*, F. L. Statler. *Constr. Foreman*, F. L. Newton, League City, Tex. *Div. Supts.*, F. D. McMahon, Longview, Tex.; J. W. Thomas, Cisco, Tex.; J. C. Hanrahan, Cisco, Tex.; W. L. Howard, Corpus Christi, Tex.; T. R. Hanrahan, Houston, Tex. *Asst. Div. Supts.*, G. A. Lee, McCamey, Tex.; R. G. Gofner, Houston, Tex. *Dist. Foremen*, F. O. Perry, Hull, Tex.; J. I. Anderson, Baytown, Tex.; M. C. Foley, Longview, Tex.; W. A. Hugg, Corpus Christi, Tex.; J. L. Van Pelt, Talco, Tex.; J. R. Cornell, McCamey, Tex.; F. H. Slink, Wink, Tex.; J. A. Griffin, McCamey, Tex.; H. A. Neath, Pampa, Tex.; J. E. Caffrey, Cisco, Tex.; I. F. Petty, Luling, Tex.; G. W. Oliver, Bruni, Tex. 6,502 miles.

Hill Pipe Line Co., Sand Springs, Okla.

Pres., E. Monsell. *Mgr.*, L. L. Wills. *Supt.*, M. L. Bond. 12.8 miles.

Huso Brothers, Ferdig, Mont.

Partners, E. R. Huso and J. A. Huso. *Sec., Treas., Mgr.* and *Supt.*, E. R. Huso. *Asst. Supt. & Foreman*, J. A. Huso. 5½ miles.

I

Illinois Pipe Line Co., The, 539 S. Main St., Findlay, Ohio.

Pres., Charles Bunje, Jr. *V. P.*, J. C. Donnell, II. *Sec.*, O. F. Moore. *Treas.*, C. H. Compf. *Ch. Engr.*, A. B. Johnson. *Pur. Agt.*, C. S. Sherk. *Gen. Supts.*, E. C. Welch, Bridgeport, Ill.; R. N. Montgomery, Houston, Tex.; P. W. Hennessy, Casper, Wyo. *Supts.*, A. H. Barber, Martinsville, Ill.; A. E. Marshall, Lima, Ohio; W. A. Montgomery, Iraan, Tex.; J. R. McLaughlin, Ranger, Tex.; E. H. Perry, Arp, Tex.; L. J. Yealy, Shelby, Mont. *Asst. Supt.*, Oscar Jaco, Martinsville, Ill. *Foreman*, H. C. Warters, Robinson, Ill. 4,776.52 miles.

Imperial Pipe Line Co., Ltd., The, 56 Church St., Toronto, Ont., Canada.

Pres., G. H. Smith. *V.P.* and *Gen. Mgr.*, J. R. Simpson. *Director*, L. C. McCloskey. *Sec.* and *Treas.*, W. J. Whitling, Sarnia, Ontario. *Supt.*, H. Wheatley, Wayne, Mich. 296.6 miles.

Independent Pipe Line Co. of Kansas, Bartlesville, Okla.

Pres., Frank Phillips, New York, N. Y. *V.P.s*, John H. Kane; C. P. Dimit. *Treas.*, K. S. Adams. *Sec.* and *Asst. Treas.*, B. F. Stradley. *Asst. Sec.* and *Asst. Treas.*, F. L. Feist. *Asst. Sec.*, C. B. Fowler. *Gen. Supt.*, J. R. Harris. *Field Supt.*, C. J. Turner, Smackover, Ark. 23.4 miles.

International Pipe Line Co., Sunburst, Mont.

Pres., F. T. Manley, 35 E. Forty-second St., New York City. *Sec.*, E. M. Crone, New York City. *Treas.*, C. E. Woodbridge, New York City. *Supt.*, O. M. Webb. 97 miles.

K

Kaw Pipe Line Co., Tulsa, Okla.

Pres., B. E. Hull. *V.P.s*, J. K. McGoldrick; E. F. Guidinger; A. N. Horne. *Sec.* and *Treas.*, H. L. Stewart. *Supt.*, T. F. Reagan.

K-D Pipe Line Co., Talco, Tex.

Owner, R. B. Knight. *Supt.*, C. C. Ashton.

Kendall Refining Co., Bradford, Pa.

Pres., Otto Koch. *V. P.*, Joseph H. Bovaird. *Exec. V. P.*, H. H. Greene. *Sec.*, J. B. Fisher. *Treas.*, Otto Koch. *Pipe Line Supt.*, W. M. Magee. *Gen. Foreman*, Harry Mills. 111 miles.

L

Lacy Refinery (R.), Box 1447, Kilgore, Tex.

Owner, R. Lacy. *Mgr.*, A. S. Robertson. *Supt.*, George H. Burrow. *Field Supt.*, J. C. Ulmer.

La.-Tex. Crude Oil Purchasing & Pipe Line Co., 411 City Bank Bldg., Shreveport, La.

Pres., C. M. Leonard. *V. P.*, R. G. Burdick. *Supt.*, W. F. Holcomb, Shoreline, La.

Lion Oil Refining Co., Exchange Bldg., El Dorado, Ark.

Pres., T. H. Barton. *V. P.s*, T. M. Martin; J. E. Howell; A. F. Reed; J. J. Allinson. *Sec.*, Jeff Davis. *Treas.*, R. E. Meinert. *Gen. Supt.*, E. W. Hardage. *Pipe Line Supt.*, J. B. Tims. *Dist. Gauger*, J. D. Kendrick. *Const. Foreman*, V. M. Speer. *Engr.*, J. E. Catlin. *Sta. Engr.*, L. O. Preddy, Smackover, Ark. 165.40 miles.

Longview Gathering System, Inc., Fort Worth, Tex.

Pres., Dan Danciger. *V. P.s*, Jack Danciger; Joe Danciger. *Sec.* and *Treas.*, A. Danciger. *Asst. Sec.*, J. E. Vaeth. *Supt.*, John C. Schroder, Greggton, Tex. *Dist. Foreman Pipe Line Dept.*, E. G. Dye.

Mc

McClanahan Pipe Line Co., Mount Pleasant, Mich.

Pres., W. L. McClanahan. *V.P.* and *Treas.*, A. H. Led-

T. R. JONES, INC.

PIPE LINE
CONTRACTORS

MAGNOLIA BLDG.
DALLAS TEXAS

KELLY-DEMPSEY & CO.

•

PIPE LINE CONTRACTORS

Years of experience in the construction of Gasoline Pipe Lines where superior workmanship is necessary

•

CALL US FOR ESTIMATES

65 No. Madison

TULSA, OKLAHOMA

beter. *Sec.*, Margaret Uhl. *Gen. Mgr.*, J. C. Sorell. *Supt.*, T. R. Russell. *Asst. Supt.*, E. R. Hanson, Jr. *Sta. Engr.*, A. R. McCrory, Prescott, Mich. *Div. Foreman*, F. Baker, Prescott, Mich. 10 miles.

McClanahan-Leonard Pipe Line Co., Mount Pleasant, Mich.

Chm. of Bd., Walter Lee McClanahan. *Pres.*, J. W. Leonard, Jr. *V. P.* and *Sec.*, David Brach. *Treas.*, B. M. Jones. *Gen. Supt.*, T. R. Russell. *Asst. Supt.*, R. Bloomer. 56 miles.

M

Magnolia Pipe Line Co., Dallas, Tex.

Pres., D. A. Little. *V. P.* and *Mgr. Pipe Lines*, T. J. Fitch. *Asst. Mgr.*, J. L. Latimer. *Gen. Supt. Tex., La.*, and *Ark.*, L. H. True. *Gen. Supt. in Okla.*, A. T. Glover. *Supt. Maintenance*, A. R. Ehrhardt. *Asst. Supt. Maintenance*, J. G. Norton. *Supt. Tel. & Tel. Dept.*, A. J. Balcom. *Div. Supt. Tel. & Tel. Dept.*, H. H. Watson. *Supt. Gaugers*, O. D. Stallard. *Elec. Engr. Tel. & Tel. Dept.*, D. H. Levy. *Div. Supt. Tel. & Tel. Dept.*, J. W. Hale, Box 1828, Oklahoma City, Okla. *Oil Dispatcher*, F. P. Childress. *Dist. Supts.*, J. E. McGeath, Box OX, Alice, Tex.; C. R. Swank, Box 1406, Shreveport, La.; J. H. Joy, Box 500, Tomball, Tex.; J. A. Smith, Box 29, Olden, Tex.; C. E. McGrew, Box 1422, Pampa, Tex.; L. A. Hancock, Box 1389, Longview, Tex.; J. J. McPolan; G. V. Copland, Box 1298, Drumright, Okla.; C. J. Henniger, Box 368, Healdton, Okla.; O. M. Joy, Box 1261, Wewoka, Okla. *Dist. Foremen*, C. R. Fitch, West Texas dist., Box 1073, Midland, Tex.; H. C. Alton, Box 277, Mirando City, Tex.; H. F. Smith, Box 838, Electra, Tex.; R. W. Stewart, Box 550, Luling, Tex. 5,801 miles.

Mason Pipe Line Co., Pecos, Tex.

Pres., O. M. Mason. *V. P.*, A. H. McCreery. *Sec.*, M. L. Breidt. *Supt.*, H. G. Eastham, Jr. *Foreman*, Russell Seneca. 12½ miles.

Massachusetts Pipe Line Co., Gladewater, Tex.

Partnership, C. R. Starnes; Glenn Smith and E. L. Ames. *Supt.*, W. G. Maness. *Foreman*, C. H. Mathews.

Minor Pipe Line Co., Gladewater, Tex. (Leased out to Service Gathering System).

Pres., J. S. Johnson. *V. P.*, M. H. McMurray. *Sec.*, H. D. Pruett, Jr.

Montreal Pipe Line Co., Tyler, Tex.

Gen. Mgr., H. B. Harter. *Supt.*, Charles L. Hopkins, Joinerville, Tex. 9 miles.

Murchison & Closuit, Inc., 1904 Alamo National Bldg., San Antonio, Tex.

Pres., T. F. Murchison. *V. P.*, E. M. Closuit. *Sec.*, Nelson P. Wimberly. *Supt.*, J. H. Randle, Artesia, N. Mex. 45 miles.

N

National Refining Co., The, Hanna Bldg., Cleveland, Ohio.

Pres., W. H. Lamprecht, II. *V. P.*, H. F. Heil. *Sec.* and *Treas.*, G. M. Taylor. *Supts.*, A. B. Ayling, Box 1000, Bartlesville, Okla.; William Jack, Box 149, Eldorado, Kans. *Asst. Supt.*, J. T. Johnson, Box 1000, Bartlesville, Okla. 811 miles.

National Transit Co., 206 Seneca St., Oil City, Pa.

Pres., D. M. Sachs. *V. P.*, L. C. Longaker. *Sec.*, F. G. Zimmermann. *Treas.*, L. C. Longaker. *Gen. Mgr.*, E. H. Fortmann. *Tel. Supt.*, D. B. Watson. *Engr.*, W. H. Sachs. *Asst. Supt.*, S. D. Osborne. *Ch. Acct.*, J. F. Russell. *Coordinating Engr.*, M. W. Robinson. *Div. Supt.*, H. A. Walter, 14 S. Anne St., Lancaster, Pa. *Dist. Supt.*, George Galmish, Butler, Pa. *Dist. Foremen*, C. L. Guignon, Warren, Pa.; C. R. Tompsett; J. A. Carlson. 3,654.33 miles.

New Mexico Pipe Line Co., Drawer 1267, Ponca City, Okla.

Pres., W. H. Ferguson, Continental Bldg., Denver, Colo. *V. P.s*, W. W. Bruce; Martin Yates, Jr., Artesia, N. Mex. *Sec.* and *Treas.*, G. F. Smith. *Asst. Sec.*, R. L. Bosworth, 60 E. Forty-second St., New York City. *Asst. Treas.*, Eunice Sweat, Continental Bldg., Denver, Colo. *Mgr.*, J. G. Dyer. *Supt.*, Neil Stallard, Texon, Tex. 70.22 miles.

Normandie Oil Corp., 1102 Sterling Bldg., Houston, Tex.

Pres., Morris Frankel. *V. P.s*, R. R. Frankel; W. N. Bonner; George Frankel, New York; Frank Frankel, New York. *Sec.* and *Treas.*, George Frankel. *V. P.* and *Gen. Mgr.*, R. R. Frankel. *Gen. Supt. Prod. and Pipe Lines*, W. A. McKee. *Land Dept.*, J. R. Frankel. *Ch. Counsel*, W. N. Bonner. *Supt. Prod. Gulf Coast*, H. H. Lewis, Box 190, Conroe, Tex. *Supt. Prod. N. and E. Tex.*, Jack Petrofsky, Box 1058, Joinerville, Tex. *Supt. Pipe Lines*. J. F. Casey, Box 190, Conroe, Tex. *Auditor*, J. F. Tucker. 33 miles.

North American Oil & Gas Co., 612 Rule Bldg., Amarillo, Tex.

Supt., C. J. Fowlston. *Field Supt.*, W. O. Propst, Box 267, Skellytown, Tex. 25 miles.

North Ten Mile Leases, Waynesburg, Pa.

Mgr., R. E. Orrill. *Sec.* and *Treas.*, W. T. Moore. *Foreman*, J. M. Hufford, Dunn's Station, Pa.

Northern Group Pipe Lines, comprising Indiana Pipe Line Co., Buckeye Pipe Line Co., Northern Pipe Line Co., New York Transit Co.

Pres., D. S. Bushnell, 26 Broadway, New York. *V. P. in Chg. of Operations*, P. R. Applegate, 26 Broadway, New York. *Gen. Counsel*, H. D. Bushnell, 26 Broadway, New York. *Sec.*, J. R. Fast, 26 Broadway, New York. *Treas.*, C. H. Cleaver, 26 Broadway, New York. *Mgr. Real Estate* and *Tax Dept.*, B. A. Towl, 26 Broadway, New York. *Asst. Mgr. Real Estate* and *Tax Dept.*, A. B. Oakes, 26 Broadway, New York. *Ch. Engr.*, J. H. Peper, 26 Broadway, New York. *Freight Traf. Mgr.*, R. J. Beatty, 26 Broadway, New York. *Pur. Agt.*, O. L. Nahouse, 26 Broadway, New York. *Oil Traf. Mgr.*, E. M. Welsh, 26 Broadway, New York. *Supt. of Tel.*, W. H. Flann, 206 Seneca St., Oil City, Pa.

Indiana Pipe Line Co.

V. P. and *Gen. Mgr.*, R. A. Miller, Huntington, Ind. *Asst. Sec.*, W. C. Shields, Huntington, Ind. *Supt.*, H. A. Somers, Jr., Huntington, Ind. *Oil Dispatcher*, F. A. McClelland, Huntington, Ind. 651 miles.

Buckeye Pipe Line Co.

V. P., T. B. Greene, 137 W. North St., Lima, Ohio. *Gen. Mgr.*, G. E. Pifer, 137 W. North St., Lima, Ohio. *Supts.*, F. M. Tinker, 137 W. North St., Lima, Ohio; W. C. Ludwick, Marietta, Ohio. *Asst. Supts.*, Grant Barbee, Marietta, Ohio; H. K. Floyd, 137 W. North St., Lima, Ohio. *Asst. Sec.*, G. P. Dildine, 137 W. North St., Lima, Ohio. *Asst. Sec.*, H. L. Pew, 137 W. North St., Lima, Ohio. *Engrs.*, H. W. Taylor and J. D. Bailey, 137 W. North St., Lima, Ohio. *Oil Dispatcher*, J. R. McNeff, 137 W. North St., Lima, Ohio. *Dist. Foremen*, D. W. McMahon, Bowling Green, Ohio; F. R. Smith, Bremen, Ohio; R. E. Soules, Marietta, Ohio; C. V. Shepard, Logan, Ohio. *Foremen of Gaugers*, N. H. FitzGerland, Findlay, Ohio; G. A. Scrafford, Marietta, Ohio. 6,946 miles.

New York Transit Co.

Dist. Foreman, M. H. Lamb, Olean, Cattaraugus County, New York. 290 miles.

Northern Pipe Line Co.

V. P. and *Gen. Mgr.*, J. A. Bartlett, 206 Seneca St., Oil City, Pa. *Asst. Sec.*, J. P. Blackford, 206 Seneca St., Oil City, Pa. 627 miles.

Norwalk Co., 634 S. Spring St., Los Angeles, Calif.

Pres., L. T. Barneson. *V.P.s*, J. L. Barneson; H. J. Barneson. *Sec.*, W. E. Kropp. *Gen. Mgr.*, L. L. Aubert. *Supt. Northern Div.*, Jack Brennan. *Supt. Southern*

OKLAHOMA CONTRACTING CORPORATION

Pipe Line Contractors

Oil—Gas—Gasoline—Water Lines

Building
Reconditioning
Reclaiming

Modern Equipment and Experienced Workmen

Speedy
Efficient
Responsible

Our Contract Bid is Your Cost

Magnolia Building - - - - Dallas, Texas

Div., Keller Grigsby. *Supt. P.L.*, E. C. Spencer. *Asst. to Gen. Mgr.*, H. M. Paulsen. 20.2 miles.

Nueces Pipe Line Co., Corpus Christi, Tex.

Pres., John L. Sullivan. *V. P.*, G. E. Sullivan. *Sec.* and *Treas.*, B. K. S. Garnett. *Asst. Sec.* and *Treas.*, T. S. Scibienski. *Div. Foreman*, I. J. Alexander, Agua Dulce, Tex.

O

Oklahoma Pipe Line Co., P. O. Box 801, Tulsa, Okla.

Pres., W. R. Finney. *V. P.* and *Treas.*, Paul Griffin. *Sec.*, Charles Nelson, Jr. *Supt.*, Bruce Ramsey. *Pur. Agt.*, Henry P. Hellinghausen. *Ch. Engr.*, Floyd E. Warterfield, Jr. *Ch. Oil Dispatcher*, H. S. Foote. *Dist. Foremen*, A. E. Erickson, Box 217, Morris, Okla.; T. D. Walkley, Route 1, Drumright, Okla.; Reece Henry, Box 750, Wewoka, Okla.; George B. Randels, Box 967, Wilson, Okla. 1,583.91 miles.

Old Dutch Refining Co., Box 442, Muskegon, Mich.

50 miles of pipe lines owned or operated.

Olney Oil & Refining Co., Wichita Falls, Tex.

Pres., C. W. Cahoon, Jr. *V. P.*, Joe A. Kell. *Sec.*, C. M. Corwell. *Treas.*, C. W. Cahoon, Jr. *Auditor*, C. G. Stokes. *Supt.*, P. E. Slater, Olney, Tex. *Asst. Supt.*, Jack P. Slater, Olney, Tex. *Engr.*, W. F. Page, Olney, Tex. 20 miles.

Osage Trust, Chadron, Neb.

Trustee, Edwin D. Crites. *Sec.*, H. E. Reische. *Treas.*, C. F. Coffee. *Gen. Mgr.*, E. B. Jones, Osage, Wyo. *Supt.*, H. T. Thorson, Osage, Wyo. 5 miles.

P

P. & S. Oil Corp., Tyler, Tex.

Pres. and *Treas.*, C. A. Prater. *V. P.*, H. G. Stewart. *Sec.*, E. Joe Demmer. *Supt.*, G. E. Harper. *Asst. Supt.*, Herbert Stewart.

Pacific States Oil Terminals, P. O. Box 187, Los Angeles, Calif.

Pres., J. J. Coney. *V. P.*, H. H. Whitesel. *Sec.* and *Treas.*, L. R. Kerdell.

Pan American Pipe Line Co., 122 E. Forty-second St., New York, N. Y.

Pres., R. E. Wilson. *V. P.s*, E. G. McKeever; J. A. Carroll, Jr. *Sec.*, D. H. Baker. *Treas.*, J. A. Carroll, Jr. *Asst. Sec.* and *Asst. Treas.*, A. N. Penn. 86 miles.

Panhandle Pipe Line Co., Amarillo, Tex.

Pres., R. E. Wertz. *V. P.s*, F. E. Jones; M. D. Snyder; E. A. Sickels. *Sec.* and *Treas.*, George Baird. *Gen. Supt.*, E. C. Wagner. *Supt.*, R. L. Dever. *Foreman*, F. F. Ford. 33.8 miles.

Panhandle Refining Co., Wichita Falls, Tex.

Pres., Roy B. Jones. *V. P.s*, R. C. Stanford; G. W. Reed. *V. P.* and *Treas.*, M. A. Chambers. *Sec.*, H. F. Bennett. *Gen. Ref. Supt.*, W. F. Sims. *Gen. Supt. Prod.*, W. L. Olmsted. *Supts.*, G. D. Kinard, Wichita Falls, Tex.; R. W. Jacobs, Kings Mill, Tex.; J. C. Hester, Lueders, Tex. *Mgr. Automotive Equip.*, Charles Borland. *Pur. Agt.*, R. J. Mann. *Legal Dept.*, R. C. Stanford. *Mgr. Land Dept.*, James P. Bowen. *Geologist*, J. F. Gibbs. *Credit Mgr.*, G. E. Mahaffey. *Auditor*, H. W. Cleaver. *Tax* and *Ins. Dept.*, H. G. Collier. 14 miles.

Panola Pipe Line Corp., P. O. Box 2015, Tyler, Tex.

Pres., H. L. Hunt. *V. P.*, J. S. Loftin, Jr. *Sec.* and *Treas.*, Roy Lee. *Supt.*, Fred Taylor. *Engr.*, Robert Gray. *Head of Tender Dept.*, Dan Dial. *Constr. Engr.*, Nick Carter.

Pasotex Pipe Line Co., 225 Bush St., San Francisco, Calif.

Pres., K. R. Kingsbury. *V. P.s*, W. H. Berg; R. W. Hanna; M. E. Lombardi. *Sec.*, B. W. Letcher. *Treas.*, V. F. Palmer. 195 miles.

Pettus Oil & Refining Co., Pettus, Tex.

Pres., Morris Roberts. *V. P.*, W. D. Walton. *Sec.* and *Treas.*, G. A. Ray, Jr. *Supt.*, J. F. Pollard. *Asst. Supt.*, V. E. Grisham.

Phillips Pipe Line Co., Bartlesville, Okla.

Pres., A. W. Hubbell. *V.P.*, E. G. Hatheway. *Sec.* and *Treas.*, W. E. Fowler. *Supt. Maintenance*, O. P. Miller, Kansas City, Mo. *Supt. E. St. Louis Terminal*, E. L. Reed, East St. Louis, Ill. *Supt. Wichita Terminal*, S. V. Montgomery, Wichita, Kans. *Supt. Kansas City Terminal*, N. F. Ferrell, Kansas City, Mo. *Supt. Borger Terminal*, E. L. Carter, Whittenburg, Tex. *Ch. Engr. Stinnett Pump Sta.*, George W. Winters, Stinnett, Tex. *Gen. Mech.*, B. R. Kidd, Burlington, Kans. 735 miles.

Potter Bros. Pipe Line Co., Inc., Kilgore, Tex.

Pres., Tom Potter. *V. P.*, W. H. Sanders. *Sec.* and *Treas.*, Julian Potter. *Field Supt.*, W. C. Howison.

Premier Oil Refining Co. of Texas, Longview, Tex.

Pres., Sylvester Dayson. *V. P.s*, S. W. Ross; R. A. Stacy. *Sec.* and *Treas.*, R. P. Hargis. *Supt.*, W. T. Reed. 22 miles.

Pure Oil Pipe Line Co. of Pennsylvania, 35 E. Wacker Drive, Chicago, Ill. (Subsidiary of Pure Oil Co.).

Pres., D. D. Irwin. *V. P.*, Henry Hauseman. *Sec.* and *Treas.*, C. H. Jay. *Ch. Acct.*, G. K. Barney. *Ch. Engr.*, D. E. Sullivan. *Supt.*, E. A. MacCadden, Marcus Hook, Pa. 56.66 miles.

Pure Transportation Co., 35 E. Wacker Drive, Chicago, Ill. (Subsidiary of Pure Oil Co.).

Pres., D. D. Irwin. *V. P.s*, Henry Hauseman; W. M. Averill, Beaumont, Tex. *Sec.* and *Treas.*, C. H. Jay. *Ch. Acct.*, G. K. Barney. *Ch. Engr.*, D. E. Sullivan. *Supts.*, J. F. Miller, Mount Pleasant, Mich.; C. L. Bernard, Muskogee, Okla.; R. H. Parr, Van, Tex.; H. C. Chrisman, Rayne, La. *Asst. Supts.*, W. W. Donaldson, Mount Pleasant, Mich.; H. W. Hillyer, Muskogee, Okla. *Mgr. Tel. Dept.*, H. C. Miller. 907 miles.

R

Reagan County Purchasing Co., Inc., Fort Worth, Tex.

Pres., Barney Holland. *V. P.*, D. A. Richardson. *Sec.* and *Treas.*, R. L. Roberts. *Dist. Supt.*, Neil Stallard, Texon, Tex.

Republic Pipe Line Co., Benedum-Trees Bldg., Pittsburgh, Pa.

Pres., O. D. Robinson. *V. P.s*, D. W. Hovey; D. D. Johnson. *Sec.* and *Treas.*, W. H. Moreland. *Supt.*, G. E. Casey, Nixon Bldg., Corpus Christi, Tex. *Asst. Supt.*, F. C. Barr, Nixon Bldg., Corpus Christi, Tex. 26 miles.

Richfield Oil Corp., Richfield Bldg., Los Angeles, Calif.

Chm. of Bd., Harry F. Sinclair, New York, N. Y. *Pres.*, Chas. S. Jones. *Chm. Ex. Com.*, Wm. C. McDuffie. *Chm. Fin. Com.*, W. Alton Jones. *V.P. Refinery*, A. M. Kelley. *Treas.*, M. R. Gross. *Sec.*, Morgan Lowery. *Controller*, R. J. Pagen. *Asst. Sec.-Treas.*, E. B. Downey. 467 miles.

Root Petroleum Co., Box 891, Longview, Tex.

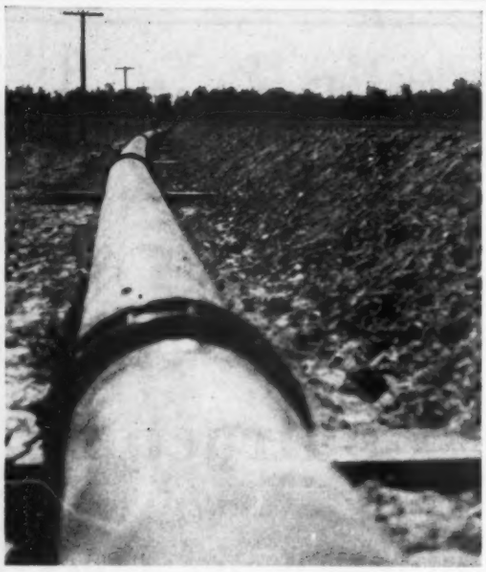
20 miles.

Rothschild Oil Co., Santa Fe Springs, Calif.

Pres., Harry S. Rothschild. *V. P.*, Oscar Samuelson. *Sec.* and *Treas.*, Josephine E. Rothschild. *Ref. Supt.*, L. A. Whitlock. 3 miles.

Rusk Oil & Refining Co., Tyler, Tex.

Pres., H. H. Coffield. *V. P.*, George P. Mann. *Sec.* and



SPECIALIZING IN
PIPE LINE
CONSTRUCTION IN
TEXAS and LOUISIANA

•

Left:—Construction of 20-inch combination welded and Dresser line for Interstate Natural Gas Company, Inc., near Winnsboro, Louisiana.

•

LATEX CONSTRUCTION COMPANY
GENERAL CONTRACTORS—Oil, Gas, Gasoline, and Water Pipe Lines
LAURENCE H. FAVROT HOUSTON, TEXAS GEO. A. PETERKIN

SMITH BROTHERS
CONSTRUCTION CORPORATION
Chas. S. Foreman, President

•

Oil and Gas Pipelines, River Crossings, Reconditioning
Waterworks and Sewerage

•

General Office
841 New York Life Building
Kansas City, Missouri

Treas., J. H. Edwards. *Pipe Line* and *Prod. Supt.*, C. A. Prater. *Field Foreman*, O. L. Renshaw. *Pipe Lines*, John Gamble.

S

Saxet Heights Pipe Line Co., 632 Bedell Bldg., San Antonio, Tex.

Pres., E. L. Buckley. *V.P.*, Claude Buckley. *Sec.* and *Treas.*, Helen Sanders. *Supt.*, M. D. Altgelt, Corpus Christi, Tex. *Asst. Supt.*, J. T. Riley, Corpus Christi, Tex. *Pumpers*, A. N. Shelton; E. B. Cox, Corpus Christi, Tex. *Gaugers*, Chas. A. Crocker, Dale Thomas, Corpus Christi, Tex. 39½ miles.

Shell Oil Co. (Pipe Line Department), 100 Bush St., San Francisco, Calif.

Pres., S. Belitcher. *V.P.s*, G. H. Van Senden; J. U. Stair; E. F. Davis; W. P. Durkee; D. Heggie. *Sec.*, A. R. Bradley. *Treas.*, D. Heggie. *Supt.*, F. B. Simms, 1008 W. 6th St., Los Angeles, Calif. *Asst. Supt.*, W. C. Roberts, 1008 W. 6th St., Los Angeles, Calif. *Engrs.*, M. C. Alcorn; F. B. Jensen, 1008 W. 6th St., Los Angeles, Calif. *Div. Supt.*, E. W. Jenkins, Drawer M, Tracy, Calif. *Gen Foreman*, H. H. McQueen, Drawer M, Tracy, Calif. *Ch. Trav. Mech.*, A. C. Grant, Drawer M, Tracy, Calif. *Foremen*, V. C. Tiscornia, Drawer M, Tracy, Calif.; W. D. McBride, Box 999, Bakersfield, Calif.; S. Shoberg, Bin Q, Long Beach, Calif.; H. J. Koeckes, Simi, Calif. *Sta. Foremen*, M. L. Tisher, Box 999, Bakersfield, Calif.; L. M. Parker, Box 578, Wasco, Calif.; A. H. Berendsen, Box 303, Lost Hills, Calif.; P. J. Shea, Box 897, Kettleman City, Calif.; E. J. Martin, Sr., Box A, Oilfields, Calif.; C. A. Brannum, Tranquillity, Calif.; E. L. True, Box 248, Los Banos, Calif.; C. Ashworth, Box 847, Crows Landing, Calif.; R. E. Longwill, Drawer M, Tracy, Calif.; C. H. Jenkins, Box 68, Byron, Calif. 721 miles.

Shell Pipe Line Corp., Shell Bldg., St. Louis, Mo.

Ch. of Bd., R. G. A. van der Woude, 50 W. Fiftieth St., New York City. *Pres.*, Alexander Fraser. *V. P.*, R. P. Bascom. *V. P.* and *Treas.*, J. W. Watson. *Sec.*, J. T. Dickerson. *Asst. Sec.* and *Asst. Treas.*, P. R. Chenoweth; W. C. Stagg, New York City.; S. W. Duhig, New York City. *Asst. Sec.*, W. F. Jones. *Asst. Treas.*, W. H. Roschke. *Mgr.*, R. F. Smith. *Supt. Tel.* and *Tel.*, F. S. Leonard. *Pur. Agt.*, C. B. Singleton. *Div. Supts. Tel.* and *Tel.*, S. A. Lesnett; F. D. Morgan, Mayo Bldg., Tulsa, Okla.; E. C. Morris, Shell Bldg., Houston, Tex. *Gen. Supt.*, A. K. Riddle, Cushing, Okla. *Asst. Gen. Supt.*, L. F. Young, Cushing, Okla. *Supts.*, W. H. Shelley, Harristown, Ill.; C. C. Ingram, Shell Bldg., Houston, Tex. *Div. Supts.*, W. N. LeSueur, Cushing, Okla.; P. J. Williams, Neosho, Mo.; W. B. Sanders, Austin, Tex.; R. Floyd, Seminole, Okla.; E. A. Dierdorff, Greenwich, Kans.; D. H. Lewis, Colorado, Tex.; D. E. Beaver, Kilgore, Tex. 4,005 miles.

Simrall Corp., Mount Pleasant, Mich.

Pres., C. L. Maguire. *V. P.*, W. L. Davis. *Sec.*, S. M. Fasguelle. *Treas.*, H. J. Chopard. *Gen. Supt.*, D. Y. Hewitt. *Asst. Supt.*, Orah Courtney. *Constr. Engr.*, Norman Blundell. *Maintenance Engr.*, Jay Parkhurst.

Sinclair Refining Co., Pipe Line Dept., Independence, Kans.

Pres., Earle Sinclair, Sinclair Ref. Co., New York City. *V. P.s*, C. H. Kountz, Box 460, Independence, Kans.; Judge Edward H. Chambler, Tulsa, Okla. *V. P.* and *Gen. Mgr.*, J. R. Manion, Box 460, Independence, Kans. *Asst. to V. P.s*, Charles Fitzgerald, Box 1990, Fort Worth, Tex.; Frank Hadley, Box 460, Independence, Kans. *Exec. Dept.*, M. E. Fannon, Box 418, Tulsa, Okla. *Asst. Sec.* and *Treas.*, R. B. Hanna, Box 460, Independence, Kans. *Auditor*, K. L. Laufman, Box 460, Independence, Kans. *Ch. Engr.*, C. R. Weidner, Box 460, Independence, Kans. *Gen. Supts.*, J. J. Linehan, Box 418, Tulsa, Okla.; C. E. McPoland, 1412 Commerce Bldg., Kansas City, Mo.; W. R. Reed, Box 460, Independence, Kans.; A. D. Sloan, Box 1990, Fort Worth, Tex. *Asst. Gen. Supts.*, W. E. Morrison, Box 418, Tulsa, Okla.; R. J. Tibbets, 1412 Commerce Bldg., Kansas City, Mo. *Master Mech.*, Leo F. McLaughlin, Box 460, Independence, Kans. *Supt. Tel.* and *Tel.*, D. R. Welch, Box 460, Independence, Kans. *Asst. Supt. Tel.*, H. E. Browne, 721 N. Penn Ave., Independence, Kans. *Div. Supts.*, L. H. Angove, Box 350, Bowie, Tex.; C. E. Christie, Box 711, Mexia, Tex.; W. F. Conry, Box 418, Tulsa, Okla.; R. B. Laughner, 414 Bondi Bldg., Galesburg, Ill.; M. J. Loftus, Box 460, Independence, Kans.; J. D. Moroney, Box 1249, Bartlesville, Okla.; Frank McFarland, 202 Morris Bldg., Mexico, Mo.; Leo B. Smith, Box 1430, Wichita Falls, Tex.; J. J. Stines, 1412 Commerce Bldg., Kansas City, Mo.; H. Wallender, Box 748, Troup, Tex. *Dist. Foremen*, B. N. Adkins, 421 N. Morrow St., Drumright, Okla.; D. M. Cox, 601 E. Fourteenth St., Ada, Okla.; A. H. Donnewald, 533 First National Bank Bldg., Wichita, Kans.; R. J. Osborn, 324 Westminister, Independence, Kans.; Dave Rike, Box 418, Tulsa, Okla. 10,592 miles.

Sinton Pipe Line Co., P. O. Box 2332, Houston, Tex.

Pres., B. E. Hull. *V. P.s*, A. S. Bailey; Ira McFarland. *Sec.* and *Treas.*, R. B. McLaughlin. 38.44 miles.

Skelly Oil Co., Skelly Bldg., Tulsa, Okla.

Pres., W. G. Skelly. *V. P.s*, C. C. Herndon; W. T. Atkins; H. M. Stalcup; Emby Kaye. *Exec. Asst.*, J. F. Nagle. *Sec.* and *Treas.*, F. T. Hopp. *Supt.*, S. G. Snyder. *Dist. Foreman*, G. E. Ault. *Supts. Clerk* and *Ch. Strapper*, Rex L. Smith. *Connection Foreman*, H. Wolf; S. Cannon; D. O. Confer; Harry Wahl. *Ch. Dispatcher*, D. A. Kemmerly. *Sta. Ch. Engr.*, J. R. Cummings. *Asst. Dist.* and *Clerk*, C. E. Manion; J. H. Williams; J. B. Sleeper. 696 miles.

Socony-Vacuum Oil Co., Inc., White Eagle Division, 1400 Federal Reserve Bank Bldg., Kansas City, Mo.

Mgr., R. R. Irwin. *Supt. of Pipe Lines*, H. K. Phipps. *Ch. Engr.*, L. R. Dickinson, Wichita, Kans. 518 miles includes gasoline line.

Southern Pipe Line Corp., Corpus Christi, Tex.

Pres., H. A. Galt. *V. P.*, C. M. Brown. *Sec.*, J. H. Heroy. *Treas.*, F. W. Currier. *Mgr.*, S. Maston Nixon. *Supt.*, D. H. Hancock. *Asst. Supt.*, Joe L. Reed.

Southern Pipe Line Co., 210 Seneca St., Oil City, Pa.

Pres., Allan T. Towl. *V. P.s*, Theo. C. Towl; J. M. Tussey. *Sec.*, E. W. Ziegler. *Treas.*, J. M. Tussey. *Gen. Supt.*, L. J. Vandergrift, Lancaster, Pa. 269 miles.

Southwest Pennsylvania Pipe Lines, 210 Seneca St., Oil City, Pa.

Pres., Allan T. Towl. *V. P.s*, Theo. C. Towl; J. M. Tussey. *Sec.*, E. W. Ziegler. *Treas.*, J. M. Tussey. *Gen. Supt.*, W. H. Fisher, Washington, Pa. 1,845 miles.

Standard Oil Co. of California, 225 Bush St., San Francisco, Calif.

Pres., K. R. Kingsbury. *V. P.s*, W. H. Berg; H. D. Collier; R. W. Hanna; R. K. Davies. *Sec.*, J. H. Tuttle. *Treas.*, V. F. Palmer. 249 miles.

Standard Oil Co. of Louisiana, Pipe Line Division, Shreveport, La.

V.P., S. W. Day. *Gen. Supt.*, J. A. Kunkle. *Asst. Gen. Supt.*, S. R. Simmons. *Ch. of Engr. Div.*, W. B. Fulton. *Supt. Tel. and Tel.*, Morris Chambers. *Master Mechanic*, F. Coryell. *Supt. of Materials and Supplies*, W. C. Taylor. *Dist. Foremen*, R. E. Hughes, Oxford, La.; S. A. Sheppard, Lafayette, La.; G. C. Rives, Rodessa, La.; T. F. Welsh, Homer, La.; O. C. Day, Smackover, Ark. 1.709.91 miles.

Standard Pipe Line Co., 225 Bush St., San Francisco, Calif.

Pres., K. R. Kingsbury. *V.P.s*, W. H. Berg; R. W. Hanna; M. E. Lombardi. *Treas.*, V. F. Palmer. *Asst. Treas.*, G. J. O'Brien. *Sec.*, B. W. Letcher. *Asst. Sec.*, G. M. Foster.

Earl A. Benson

Builders of pipe lines for the oil industry

B. & M. CONSTRUCTION CORPORATION

1313-15 PETROLEUM BUILDING

OKLAHOMA CITY, OKLAHOMA

Phones

7-8844 8-2685

Wm. V. Montin

Standish Pipe Line Co., Bartlesville, Okla.

Pres., E. F. Guidinger. *V. P.*, J. R. Harris. *Sec.* and *Treas.*, C. J. Logue. *Div. Supts.*, R. T. Conwell, R. 9, Box 118, Oklahoma City, Okla.; E. V. Kile, Thrall, Kans.; E. A. Ralston, Box 328, Whittenburg, Tex. *Dist. Foremen*, D. R. Holloman, Box 328, Whittenburg, Tex.; G. H. Kuepker, Box 1615, Pampa, Tex.; W. K. Patrick, R. 2, Box 3-A, Kaw, Okla.; W. H. Wallace, R. 9, Box 118, Oklahoma City, Okla.; F. M. Patterson, R. 2, Box 420-I, Seminole, Okla.; C. J. Turner, care of Phillips Petroleum Co., Smackover, Ark. *Master Mech.*, Fred Sierman, R. 2, Box 3-A, Kaw, Okla. 1,251 miles.

Stanolind Pipe Line Co., Tulsa, Okla.

Pres., R. S. Ellison. *V. P.s*, E. G. Seubert; B. P. Sibole. *Sec.* and *Treas.*, A. L. Carlson. *Gen. Supt.*, William G. Heitzel. *Ch. Engr.*, C. M. Scott, Jr. *Master Mech.*, J. B. Harshman. *Asst. Ch. Engr.*, J. J. Boyd. *Supt. Tel.* and *Tel.*, F. P. O'Connor. *Supt. Right of Way*, S. M. Briscoe. *Traf. Mgr.*, J. L. Burke. *Ch. Oil Dispatcher*, Ray Harvey. *Supt. of Tankage*, Eugene Moynihan. *Supt. of Welding*, A. M. Hill. *Corrosion Engr.*, J. C. Stirling. *Ch. Gauger*, Bert Martin. *Auditor*, J. L. Shoemaker. 7,381 miles.

Stoll Oil Refining Co., Louisville, Ky.

Pres., C. C. Stoll. *V. P.s*, George Stoll; Berry V. Stoll; Charles E. Stoll. *Sec.* and *Treas.*, William A. Stoll. *Comptroller*, Albert S. Prinz. *Refinery Supt.*, J. W. Kittner. *Asst. Ref. Supts.*, George Kittner; Covington Arteburn; Reuben Johnson. *Chem.*, Clem S. Luce. *Traf. Mgr.*, J. J. Kirchner (Railroad); George E. Gill (Trucks). *Plant Supt.*, N. J. Fallahay. *Pipe Line Supts.*, W. V. Whisman, Hardyville, Ky. *Asst. Pipe Line Supt.*, J. W. Elmore; Charles Woodman. 80 miles.

Sun Pipe Line Co. (Delaware), 1608 Walnut St., Philadelphia, Pa.

Pres., J. N. Pew, Jr. *V. P.*, J. Edgar Pew. *Sec.* and *Treas.*, Frank Cross. *Gen. Supt.*, Frank L. Hadley. *Consulting Engr.*, Henry Thomas. *Ch. Engr.*, B. K. Morse. *Ch. Dispatcher*, R. W. Bowers. *Supervisor of Meters*, Louis M. Miller. *Physicist*, Dr. J. M. Pearson. *Elec. Engr.*, Raymond F. Hadley. *Div. Supts.*, F. H. Guthrie, 313 Archie St., Oakmont, Pa.; James E. Ford, Icedale Pump Sta., R.F.D. No. 1, Honeybrook, Pa. *Supt.*, Henry J. Grieser (Middlesex Pipe Line Co.), Plainfield, N. J. *Gen. Inspector*, P. H. Coe, 222 Conewango Ave., Warren Pa. *Div. Foremen*, Clyde Pidcock, 539 S. Richard St., Bedford, Pa.; C. J. Baldwin, 214 Luzerne Ave., West Pittston, Pa. *Foreman*, Percy Conway, 19 Port Watson Ave., Cortland, N. Y.

Sunset Oil Co., 9th Floor, Pacific Electric Bldg., Los Angeles, Calif.

Pres., James H. Lewis. *Asst. to Pres.*, H. L. Rose. *Sec.* and *Treas.*, Carl B. Smith. *Mgr. P.L. Dept.*, M. V. Moulton. *Ch. Engr.*, E. H. Broughton. *Pur. Agt.*, C. Humphrey. 86.94 miles.

Sylvania Corp., The, 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, J. G. Montgomery. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Treas.*, M. J. Talley. *Pur. Agt.*, M. J. Connor.

T

Talco Pipe Line Co., 510 Continental Bldg., Dallas, Tex.

Pres., J. F. Lucey. *V. P.s*, Ralph E. Fair; Jack Frost; D. Harold Byrd. *Sec.* and *Treas.*, J. L. Lobdell. *Gen. Supt.*, C. L. Todd, Talco, Tex.

Texas Co. (California), The, 929 S. Broadway, Los Angeles, Calif.

Pres., C. E. Olmsted. *V. P.s*, H. W. Dodge; L. R. Holmes; R. T. Herndon. *Sec.*, E. M. Crone, New York City. *Treas.*, C. E. Woodbridge, New York City. *Asst. Sec.*, E. B. Liles. *Asst. Treas.*, W. D. Stewart. *Supt.*, Elmer L. Dreyer, Box 817, Wilmington, Calif. *Asst. Supt.*, F. A. Jones, Box 817, Wilmington, Calif. 238 miles.

Texas-Empire Pipe Line Co., The, Houston, Tex.

Pres., B. E. Hull. *V. P.s*, A. N. Horne; F. A. Stivers. *Sec.* and *Treas.*, H. L. Stewart. 1,271.64 miles.

Texas-Empire Pipe Line Co. of Texas, The, Tulsa, Okla.

Pres. and *Mgr.*, F. A. Stivers. *V. P.s*, A. N. Horne; G. R. Kinter. *Sec.* and *Treas.*, H. L. Stewart. 209.11 miles.

Texas Pipe Line Co., The, Box 2332, Houston, Tex.

Pres. and *Mgr.*, B. E. Hull. *V. P.* and *Asst. Mgr.*, A. S. Bailey. *V. P.*, T. J. McMahon. *Sec.* and *Treas.*, R. B. McLaughlin. 5,145.91 miles.

Texas Pipe Line Co. of Oklahoma, The, Box 2420, Tulsa, Okla.

Pres., J. K. McGoldrick. *V. P.s*, J. H. Hill; B. E. Hull. *Sec.* and *Treas.*, H. L. Stewart. 1,308.62 miles.

Texas-New Mexico Pipe Line Co., P. O. Box 2332, Houston, Tex.

Pres. and *Mgr.*, B. E. Hull. *V. P.s*, J. R. Manion; Ira McFarland. *V. P.* and *Asst. Mgr.*, A. S. Bailey. *Sec.* and *Treas.*, R. B. McLaughlin. 813.20 miles.

Thurber Pipe Line Co., Fort Worth, Tex.

Pres., G. R. Penn. *V.P.*, John Hancock. *Sec.* and *Treas.*, R. Seibel. *Supt.* and *Engr.*, R. J. Flickenstine. *Asst. Supt.*, G. E. Shafer. *Div. Foreman*, C. H. Martin, Ranger, Tex.

Tidal Pipe Line Co., 17 Battery Place, New York, N. Y.

Pres., E. L. Shea. *V. P.s*, E. H. Salrin, Houston, Tex.; G. R. Kinter, Tulsa, Okla. *Sec.*, Y. P. Broome, Tulsa, Okla. *Treas.*, K. R. Hankinson. *Supt.*, C. F. Guinn, Tulsa, Okla. 537 miles.

Tide Water Pipe Line Co., Ltd., The, Bradford, Pa.

Pres., M. D. Harris. *V. P.*, C. W. Morrison. *Sec.*, W. J. Burker. *Treas.*, K. R. Hankinson. *Supt.*, J. Z. Van Tine. *Pur. Agt.*, E. W. Duggan. *Master Mech.*, L. C. Harding. 1,354 miles.

Toronto Pipe Line Co., The, 1406 Philtower Bldg., Tulsa, Okla.

Pres., A. L. Ellsworth. *V. P.s*, J. C. Millar; W. K. Whiteford. *Sec.*, R. M. Pitcher. *Treas.*, J. C. Miller. *Supt.*, C. M. Bryson. *Foremen*, G. J. Blackard, Arp, Tex.; T. A. Branch, Cut Bank, Mont.

Trans-Pecos Pipe Line Co., 404 First National Bank Bldg., Houston, Tex.

Pres., F. A. Hornaday. *V. P.*, Albert T. Woods. *Sec.* and *Treas.*, C. A. Barbour. *Gen. Mgr.* and *Supt.*, Terry A. Hornaday, Artesia, N. Mex. 40½ miles.

Transport Oil Co., 4323 S. Western Blvd., Chicago, Ill.

Pres., P. B. Flynn. *V. P.*, I. G. Abney. *Sec.* and *Treas.*, R. S. Watt. *Supt.*, Nolan Williams, Trees, La.

Transit & Storage Co., P. O. Box 150, Port Huron, Mich.

Pres., P. R. Naylor. *V. P.*, J. R. Simpson. *Sec.* and *Treas.*, George Kelting. *Mgr. Ohio-Mich. Pipe Line Div.*, Harry Wheatley, Wayne, Mich. *Mgr. Mont. Div.*, P. R. Naylor, Denver, Colo. 333.7318 miles.

Turnbow Petroleum Corp. (W. C.), 615 McWilliams Bldg., Longview, Tex.

Pres., W. C. Turnbow. *V. P.*, Julie Ruth Turnbow. *Sec.*, Edna Tarver. *Field Supt.*, A. C. Hale. *Asst. Supts.*, J. L. McCarty, Route 4, Longview, Tex.; R. L. Tomme, Kilgore, Tex.

U

Union Oil Co. of California, Union Oil Bldg., Los Angeles, Calif.

Pres., L. P. St. Clair. *Exec. V. P.*, R. D. Matthews.

AMERICAN CHIEF HEATER — MODEL "H"

Distributor
R. B. Hall Company, Magnolia Bldg.,
Dallas, Texas

Distributor
Lewis Bros. Company
Tulsa, Oklahoma

NEW DESIGNED HEATERS FOR PIPE LINES

IMPROVEMENTS INCLUDE

FULL FLOATING EXPANSION JOINTS
LOWEST LOADING HEIGHT
ANTI-SPLASH VAT
EVEN HEAT DISTRIBUTION
SHORT TURNING RADIUS
SUBMERGED DRAW-OFF VALVE

MANY OTHER IMPROVEMENTS

Write For New Catalog No. 20—Just Published

27th & Southwest Blvd. AMERICAN STEEL WORKS Kansas City, Mo.

V. P.s, W. W. Orcutt; W. L. Stewart, Jr.; Paul M. Gregg. *Asst. V. P.*, A. C. Galbraith. *Comptroller*, G. H. Forster. *Asst. Comptrollers*, A. B. Mason; A. H. Hand; M. G. Kerr. *Sec.*, W. R. Edwards. *Treas.*, J. M. Rust.. *Asst. Sec.*, E. H. Estill. *Asst. Treas.s*, A. C. Marshall; H. W. Sanders. *Dir. of Trans.*, William Groundwater. *Mgr. Pipe Line Oper.*, W. W. Hay. *Gen. Supt. Pipe Lines*, Lafe Todd, San Luis Obispo, Calif. *Supt. No. Div.*, R. V. Rosborough, San Luis Obispo, Calif. *Supt. So. Div.*, J. H. Robinson, Brea, Calif. 1,066 miles. Also 60 per cent interest in a 23-mile pipe line in Wyoming operated by Continental Oil Co.

United Pipe Line Co., Rusk Bldg., Houston, Tex.

Pres., N. C. McGowen. *V. P.s*, R. H. Hargrove; B. M. Nowery. *Sec.*, J. H. Miracle. *Treas.*, L. V. Tracht. *Supt.*, W. F. Hartwig, City Bank Bldg., Shreveport, La. *Field Supt.*, M. W. Ransom, City Bank Bldg., Shreveport, La. 66 miles.

United States Pipe Line Co., 35 E. Wacker Drive, Chicago, Ill. (Subsidiary Pure Oil Co.).

Pres., D. D. Irwin. *V. P.*, Henry Hausman. *Sec.* and *Treas.*, C. H. Jay. *Ch. Acct.*, G. K. Barney. *Ch. Engr.*, D. E. Sullivan. *Supt.*, E. A. McCadden, Marcus Hook, Pa. *Dist. Forman*, R. L. Elliott, Marcus Hook, Pa. 60 miles.

Unity Petroleum Corp., Shelby, Mont.

Pres. and *Treas.*, Boris A. S. Aronow. *V.P.*, E. Tanner. *Sec.*, M. Anderson. *Supt.*, J. A. Burnett, Kalispell, Mont. *Mgr.*, R. J. Sticka, Havre, Mont.

Upshur Pipe Line, Gladewater, Tex.

Pres., P. H. Pewitt. *Supt.*, L. M. Daugherty. *Tender Agt.*, J. R. McGee. 7 miles.

V

Valley Pipe Line Co., 417 S. Hill St., Los Angeles, Calif.

Pres., C. P. Watson. *V. P.*, L. R. Holmes. *Sec.*, A. W. Mitchem. *Treas.*, W. A. Russell. *Gen. Supt.*, W. H. Lawrence, Morro Bay, Calif. 72 miles.

Valley Pipe Line Co., 1904 Alamo National Bank Bldg., San Antonio, Tex.

Pres., E. M. Closuit. *V. P.*, T. F. Murchison. *Sec.* and *Treas.*, Nelson P. Wimberly. *Supt.*, H. H. Hensley, McAllen, Tex. *Asst. Supt.*, L. E. Etherington, McAllen, Tex. *Maintenance*, H. P. Fowler. *Sta. Engr.* W. W. Files; C. E. Stewart; J. D. Hull; Mr. Glover; Mr. Irby; Mr. Carter; Mr. Hollan; Mr. Palmer, all of McAllen, Tex. *Gauger*, J. D. Baxter, McAllen, Tex. *Asst. Gaugers*, Frank Mays and W. K. True, McAllen, Tex. *Constr. Foremen*, Mr. Cox and Mr. Jones, McAllen, Tex. 90 miles.

Valvoline Oil Co., Cincinnati, Ohio.

Pres., H. W. Edwards. *V. P.s*, C. W. Luton; C. J. Leroux; H. J. Garlough. *Sec.*, C. C. Gould. *Treas.*, C. J. Leroux. *Supt. of Ref.*, Charles Noyes, Butler, Pa. *Asst. Supt. of Ref.*, A. S. Hagan, Butler. Pa. *Ch. Engr.*, Robert Stanley, Butler, Pa. *Ch. Chem.*, Louis Calkins, Franklin, Pa. *Supt.*, H. W. Winkler, Franklin, Pa. *Ch. Grease Chem.*, Haden Smith, Franklin, Pa. *Mgr. Pipe Lines*, Clarke Karns, Butler, Pa. *Asst. Mgr. Pipe Lines*, J. J. Dunlery, Butler, Pa. *Pur. Agt.*, E. H. Shepherd. 1,800 miles.

Vickers Petroleum Co., The, Wichita, Kans.

Pres., J. A. Vickers. *V. P.*, C. L. Henderson. *Sec.* and *Treas.*, John S. Wertz. *Traf. Mgr.*, H. G. Shaw. *Prod. Supt.*, John M. Little. *Ref. Supt.*, R. M. Schrepfer. *Mgr. Land Dept.*, James J. Brown. *Geologist*, Lindsey G. Morgan. 41 miles.

W

Webb County Gathering System, Inc., Box 1472, Beaumont, Tex.

Pres., H. M. Reed. *Sec.* and *Treas.*, T. H. Jenkins. *Supt.*, J. G. McIntosh, Box 329, Corpus Christi, Tex. 2 miles.

Jim Wells Pipe Line Co., 1008 Nixon Bldg., Corpus Christi, Tex.

Pres., Tom Graham. *V. P.*, J. T. Graham, Jr. *Sec.*, E. E. Swift. *Gen. Supt.*, J. A. Kimmey. *Supt.*, C. E. McCarthy, Premont, Tex. *Acct. Officer*, Miss Narcille Gouger. 6 miles.

Welcetka Pipe Line Co., Sand Springs, Okla.

Pres., R. W. McClure. *V. P.*, D. V. Sullivan. *Sec.*, T. S. Matthews. *Treas.*, C. F. Colvin. *Supt.*, D. V. Sullivan, Okemah, Okla. 19.94 miles.

West Texas Refining Co., Dallas, Tex.

Pres., F. W. Burford, *V. P.*, John J. Thomas. *Sec.*, E. V. Campbell. *Supt.*, J. W. Lamar. *Engr.*, *C. M.* Bell. 48 miles.

Wheeler Pipe Line Co., Box 507, Sayre, Okla.

Pres., O. B. Thomas. *V. P.* and *Treas.*, C. K. Springfield. *Sec.*, James E. Allison. *Gen. Supt.*, H. C. Pace, Shamrock, Tex. *Ch. Engr.*, W. F. Seegar. 10 miles.

Wilcox (H. F.), Oil & Gas Co., Sixth and Denver Sts., Tulsa, Okla.

Pres., H. F. Wilcox. *V. P.*, F. H. Dunn. *V. P.* and *Treas.*, M. P. Appleby. *Sec.* and *Asst. Treas.*, C. L. Miller. *Asst. Sec.*, J. L. Keefe. *Gen. Counsel*, Horace B. Clay. *Ref. Supt.*, W. M. Fraser, Box 810, Bristow, Okla. *Sales Mgr.*, L. G. Murrell. *Constr. Supt.*, W. R. Bingham. *Land Supt.*, A. L. Chapman. *Asst. Land Supt.*, H. B. Ward. *Ch. Geologist*, T. O. D. Shelton. *Pur. Agt.* and *Ref. Sales Mgr.*, T. H. Riggin. *Prod. Supt.*, J. M. Clover. *Asst. Prod. Supt.*, R. I. Bradley. *Field Supt.*, George Bears, Box 752, Gladewater, Tex. *Ch. Field Clerk, Bristow Area*, E. E. Henson, Box 810, Bristow, Okla. *Supt. West Bristow Dist.*, Jess Denton, Box 810, Bristow, Okla. *Supt. East Bristow* and *Beggs Area*, Fred Elmore, R. 1, Beggs, Okla. *Supt. Pampa Dist.*, E. E. Holden, Box 422, Pampa. Tex. *Supt. Oklahoma City Dist.*, Charles Yates, 114 S E. 23rd St., Oklahoma City, Okla. *Supt. Burrton Dist.*, T. E. Beard, Box 167, Burrton, Kans. *Farm Boss*, Gilliam Lease, J. Roy Dickson, Box 85, Pearsall, Tex. *Gaso. Plant Foreman*, D. C. Gantt, Box 422, Pampa, Tex. 164 miles.

Woodson Oil Co., The, Casper, Wyo.

Pres., M. D. Smith. *Sec.*, W. H. Wehrli.

Y

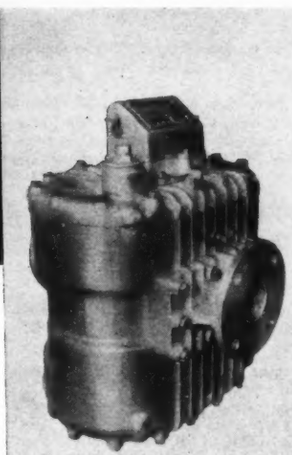
Yale Oil Pipe Line Co., Billings, Mont.

Partners, L. B. Hancock, P. N. Fortin and F. B. Hancock. *Supt*, B. R. Walker, Lovell, Wyo. *Auditor*, F. G. Nason.

Yount-Lee Pipe Line Co., Tulsa, Okla.

Pres., A. W. Peake. *V.P.s*, F. O. Prior; A. M. McCorkle. *Sec* and *Treas.*, F. J. Keleher.

OCECO Meters . . provide permanent unvarying accuracy!



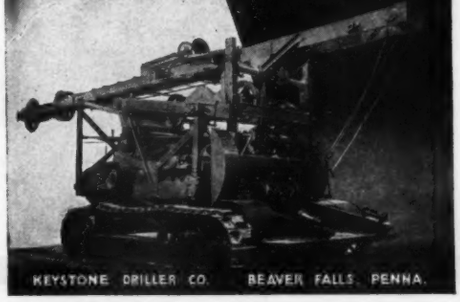
● Oceco Meters give unsurpassed accuracy in measuring any transfer. They are unaffected by variations of pressure, viscosity, temperature or wear . . . can be used with any petroleum product ranging from heavy oil to refined gasoline—and without recalibration. Oceco Meters are easily installed. They are shipped fully calibrated, ready for immediate installation and use, require no adjustment in the field. Capacities from 50 to 1000 gallons a minute. Complete details and a fully descriptive catalog will be sent on request.

OCECO Fittings

THE JOHNSTON & JENNINGS CO.
OCECO DIVISION
884 Addison Road • Cleveland, Ohio
Engineering and Sales Services: NEW YORK • CHICAGO • PITTSBURGH
BEAUMONT, TEXAS • TULSA, OKLAHOMA • LOS ANGELES • OAKLAND, CALIF.

MODEL-80 KEYSTONE ALL STEEL SPUDDER

A rugged, mobile unit that swings 3000 lbs. of tools on longest stroke at 800 ft. depth. Works to 2500 ft. depth with lighter tools. Crawler traction, non-traction wheels, or skid mounted. Dependable performance for Blast Hole work and for Oil Field Drilling Cleanout work to 6000 feet. Send for data and prices. . . .



KEYSTONE DRILLER CO. BEAVER FALLS, PENNA.

A SIZE AND TYPE FOR EVERY PURPOSE

FRANCKE • GEAR TYPE

WALDRON

FLEXIBLE COUPLINGS

These strong steel couplings are in general use wherever drives are subject to shock loads or vibration. Their design and construction make them about as trouble-free as it is possible to build a flexible coupling. MEDIUM DUTY type for small bore; TORQUE RING for heavy duty; Mill Motor type; Floating Shaft type; FRANCKE Standard and Special Types.

Write for catalog or services of our Engineering Department that welcomes the opportunity to advise you on your requirements.

JOHN WALDRON CORPORATION
NEW BRUNSWICK • NEW JERSEY
New York Pittsburgh Chicago Portland Ore.

Gasoline Pipe Line Personnel

C

Cimarron Valley Pipe Line Co., Enid, Okla.

Pres., H. H. Champlin. *V. P.*, Joe N. Champlin. *Sec.* and *Treas., Mgr.*, E. G. Wilmoth. *Supt.*, B. Payne.

D

Detroit Southern Pipe Line Co. and Toledo Northern Pipe Line Co., 35 E. Wacker Drive, Chicago, Ill.

Pres., C. B. Watson. *V. P.s*, D. D. Irwin; Henry Hauseman. *Sec.* and *Treas.*, C. H. Jay. *Ch. Engr.*, D. E. Sullivan. *Supt.*, B. W. Winters, 9332 Buffalo Blvd., Hamtramck, Detroit, Mich. 84 miles.

G

Great Lakes Pipe Line, Bryant Bldg., Kansas City, Mo.

Pres., Dan Moran. *V. P.* and *Gen. Mgr.*, Harry Moreland. *V. P.* and *Gen. Counsel*, J. J. Cosgrove. *Sec.* and *Treas.*, P. A. Ward. *Gen. Supt.*, E. H. Skinner. 1,518 miles.

H

Hanlon Pipe Line Co., Tulsa, Okla.

Pres., D. E. Buchanan. *V.P., Sec., Treas.*, J. H. Boyle. *Supt.*, C. E. Wharton, Gladewater, Tex. 90 miles.

K

Keystone Pipe Line Co., 260 S. Broad St., Philadelphia, Pa.

Pres., J. W. Van Dyke. *V. P.s*, W. M. Irish, R. C. Tuttle, H. G. Schad. *Sec.*, B. G. McKain. *Treas.*, Paul Shuman. *Asst. Sec.*, J. D. Lawrence. *Asst. Treas.*, Charles J. Reller, N. S. McCausland. *Supt.*, J. M. Williams. *Pur. Agt.*, J. S. Parks. *Engr.*, R. H. Lynch. *Ch. Dispatcher*, Norman Hunter. *Field Supt.*, R. B. O'Neal, P. O. Box 86, Sinking Spring, Pa. *Pump Sta. Supt.*, C. F. Preuss, P. O. Box 43, Wernersville, Pa. 700 miles.

P

Phillips Pipe Line Co., Bartlesville, Okla.

Pres., A. W. Hubbell. *V. P.s*, Cecil L. Hunt, E. G. Hatheway. *Sec.* and *Treas.*, W. E. Fowler. *Supt. of Maintenance*, O. P. Miller, 1232 Broadway, Kansas City, Mo. *Supt. Wichita Sta. and Terminal*, E. L. Reed, Box 397, Wichita, Kansas. *Supt. Kansas City Terminal*, N. F. Ferrell, Box 268, Kansas City, Kans. *Supt. E. St. Louis Terminal*, S. V. Montgomery, Box 352, E. St. Louis, Ill. *Ch. Engrs.*, Borger Sta., E. L. Carter, Box 148, Whittenburg, Tex.; Stinnett Sta., George Winters, Stinnett, Tex.; Spearman Sta., B. E. Plummer, Drawer X, Spearman, Tex.; Darrouzett Sta., Glenn Phillips, R. No. 2, Booker, Tex.; Laverne Sta., Jess Bradshaw, R. No. 3, Box 118, Laverne, Okla.; Hardtner Sta., C. D. Traywick, Box 115, Hardtner, Kans.; Attica Sta., W. D. Griffith, Box 98, Attica, Kans.; Ramsey Sta., E. M. Pancake, Box 543, Eldorado, Kans.; Cassoday Sta., E. A. Hess, Box 1, Cassoday, Kans.; Madison Sta., Charles F. Higgins, Box 353, Madison, Kans.; Sharpe Sta., Set Tyler, R. No. 1, Waverly, Kans.; Richmond Sta., E. T. Eisele, Richmond, Kans.; Cheney Sta., H. R. McPherson, Box 188, Cheney, Kans.; Paola Sta., J. E. Earnest, Box 109, Paola, Kans.; Olathe Sta., D. H. Wilkinson, Box 308, Olathe, Kans.; Harrisonville Sta., J. B. Jones, Box 318, Harrisonville, Mo.; Leeton Sta., G. E. Humphrey, Leeton, Mo.; Syracuse Sta., C. R. Plummer, Box 81, Syracuse, Mo.; Jefferson City Sta., E. H. Rasberry, Box 295, Jefferson City, Mo.; Rosebud Sta., McKinley Johnson, Swiss, Mo.; Villa Ridge Sta., Earl Durbin, Villa Ridge, Mo.; Medicine Lodge Sta., R. L. Coleman, Box 133, Medicine Lodge, Kans.; Buffalo Sta., Don T. Miller, Buffalo, Okla. *Ch. Mech.*, B. R. Kidd, Box 474, Burlington, Kans. 736 miles.

S

Socony-Vacuum Oil Co., Eastern Division, 26 Broadway, New York, N. Y.

Pres., John A. Brown. *V. P.s*, Charles E. Arnott, Edwy R. Brown, Arthur F. Corwin, Frederic Ewing, Harold F. Sheets, Frederick S. Fales. *Gen. Counsel*, George V. Holton. *Sec.*, William D. Bickham. *Treas.*, Arthur T. Roberts. *Asst. Sec.*, Paul J. Buttles, Warren B. Hall. *Asst. Treas.*, John F. Seal, Victor B. Geibel. *Gen. Auditor*, William B. Miller. *Asst. Comptrollers*, Riche H. Johnson, Frederick R. Ficken. *Directors*, Charles E. Arnott, Short Hills, N. J.; Edwy R. Brown, Dallas, Tex.; John A. Brown, New York City; Arthur F. Corwin, Bronxville, N. Y.; Frederic Ewing, Greenwich, Conn.; Frederick S. Fales, New Rochelle, N. Y.; George V. Holton, Plandome, L. I.; Harold F. Sheets, Montclair, N. J. 82 miles.

Socony-Vacuum Oil Co., White Eagle Division, Kansas City, Mo.

Supt., H. K. Phipps. *Ch. Engr.*, L. R. Dickinson, Wichita, Kans.

Susquehanna Pipe Line Co., 1608 Walnut St., Philadelphia, Pa.

Pres., J. N. Pew, Jr. *V. P.*, J. Edgar Pew. *Sec.* and *Treas.*, Frank Cross. *Gen. Supt.*, Frank L. Hadley. *Consulting Engr.* and *Dir. of Pur.*, Henry Thomas. *Traf. Mgr.*, Porter L. Howard. *Ch. Dispatcher*, R. W. Bowers. *Ch. Engr.*, B. K. Morse. *Elec. Engr.*, Raymond F. Hadley. *Supr. of Meters*, Louis M. Miller. *Gen. Inspector*, Paul H. Coe, Warren, Pa. *Supt. E. Div.*, James E. Ford, Icedale, Pa. *Supt. W. Div.*, F. H. Guthrie, Allegheny, Pa. *Foreman E. Div.*, C. J. Baldwin, West Pittston, Pa. *Foreman W. Div.*, Clyde Pidcock, Bedford, Pa. 605.11 miles.

T

Tuscarora Oil Co., Ltd., 3401 N. Sixth St., Harrisburg, Pa.

Pres., E. J. Lewis. *V. P.* and *Supt.*, W. E. Beckner. *Sec.* and *Treas.*, Henry Hofmann. *Supt.*, B. M. Hildebrand. *Engr.*, J. W. deHoog. *Line Foreman*, D. E. Cully, Myerstown, Pa. 535.53 miles.

Steel-Pipes

more than 318mm (12.5 in) o. Dia.

Long-distance gas mains for the Ruhrgas A.-G. Essen 20" to 32" bore; 9/32" to 23/64" shell; welded socket and safety welded socket.

Seamless

Watergas lapwelded

Electrically welded

Grossrohr-Verband

Düsseldorf (Germany)
Bismarckstr. 44/46

Personnel of Natural Gas Pipe Line Companies

A

Acme Natural Gas Co., Leechburg, Pa.

Pres., J. C. Wally. *Sec. and Treas.*, F. H. Crosby.

Allegheny Butler Gas & Oil Co., 16 East Center St., Danville, Pa.

Pres., W. D. Smith. *Sec.*, M. P. Smith. *Treas.*, H. J. Smith. *Supt.*, W. D. Smith, Gibsonia, Pa. 3 miles.

Amarillo Oil Co., P. O. Box 637, Amarillo, Tex.

Pres., N. K. Moody, Tulsa, Okla. *V. P.s*, E. A. Sickels, Tulsa, Okla.; C. W. Trapp, Kansas City, Mo.; E. C. Wagner; P. C. Spencer, New York City; W. A. Vinson, Houston, Tex. *Sec.* and *Treas.*, George Baird, New York City. *V. P.* and *Gen. Mgr.*, R. E. Wertz. *Ch. Engr.*, W. W. Rusk. *Gen. Supt.*, C. E. Wagner. *Supt.*, R. L. Dever. *Pur. Agt.*, T. R. Cross. *Gas Engr.*, A. F. Cox. 70.32 miles.

Ambridge Gas Co., 467 Maplewood Ave., Ambridge, Pa.

Pres. and Treas., F. C. Schroeder. *Sec.*, F. C. Schroeder, Jr. *Mgr.*, W. D. Ashenhart. 5½ miles.

American Michigan Pipe Line Co., Muskegon, Mich.

Pres., G. R. Chamberlain. *V. P.s*, Dean W. Flowers; B. J. Denman. *Sec.* and *Treas.*, G. J. Zorn. *Supt.*, H. J. Gabel. 52 miles.

American Pipe Line Co., Bartlesville, Okla.

Pres., Vacant. *V. P.*, Glen W. Clark. *Sec.* and *Treas.*, Q. R. Dungan. *Supt.*, John G. Crego. *Mgrs.*, C. H. Manney, Pawhuska, Okla.; J. G. Allen, Barnsdall, Okla. 160 miles.

Arkansas Louisiana Gas Co., Shreveport, La.

Pres., Vacant. *V. P. and Gen. Mgr.*, D. W. Harris. *V. P.s*, F. R. Coates, J. R. Munce, W. A. Jones, T. I. Carter. *V. P. and Gen. Supt.*, A. H. Weyland. *Sec.*, T. J. Heard. *Treas.*, B. R. Muirhead. *Ch. Engr.*, H. T. Goss. *Pur. Agt.*, J. Lucas. *Supt.*, W. H. Buckley. *Asst. Supt.*, R. P. Gonzales. *Prod. Supt.*, Paul Weeks. *Comp. Sta. Supt.*, W. E. Nester. *Measure Supt.*, Earl Kightlinger. *Ind. Engr.*, F. S. Kelly, Jr. *Ch. Dispatcher*, R. H. Johnston. *Ch. Clerk*, T. L. Holcombe. *Asst. Prod. Supt.*, Bill Meares. *Dist. Pipe Line Supt.*, W. A. Long. *Foremen*, Ralph Hickman, Carl Shively, Rufus Ramsey. *Pipe Line Supt., Dist. No. 2*, L. W. Young, Hope, Ark. *Foremen Dist. No. 2*, Lambert Irwin, Roy Halbert, W. C. Miller, Bill Price. *Pipe Line Supt. Dist. No. 3*, Jim Griffith, El Dorado, Ark. *Foremen Dist. No. 3*, O. H. Blackstock, M. C. Ritter, J. C. Riffe, G. E. Blosser. *Plant Supts.*, T. O. Treese, Barton Sta., El Dorado, Ark.; Claude Dunham, Munce Sta., Sterlington, La.; Sam McMillian, Rogers Sta., Lewis, La.; Sam Panky, Trees Sta., Emmett, Ark.; George Keener, Mills Sta., Rodessa, La.; Harry H. Moreland, Adams Sta., Bethany, Tex. 1,429.68 miles.

Arkansas Natural Gas Corp., Shreveport, La.

Pres., H. L. Doherty. *V. P.s*, W. A. Jones, F. R. Coates, T. I. Carter, J. R. Munce. *V. P. and Gen. Mgr.*, D. W. Harris. *Sec.*, T. J. Heard. *Treas.*, B. R. Muirhead. *Supt.*, W. H. Buckley. *Prod. Supt.*, Paul Weeks. *Pur. Agt.*, J. Lucas. *Ch. Engr.*, H. T. Goss. 51.33 miles.

Arkansas Western Gas Co., Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *V.P.* and *Dist. Mgr.*, L. L. Baxter, Fayetteville, Ark. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Pur. Agt.*, F. D. Bradley.

B

Bellewood and Monongahela City Natural Gas Co., 113 Fourth St., Monongahela, Pa.

Pres., George W. Scott. *V. P.*, Robert W. Byers. *Sec.*, George B. Scott. *Treas.*, E. W. Gibbons. *Gen. Mgr.*, E. W. Gibbons. *Trans. and Dist. Supt.*, William E. Leathers. *Prod. Supt.*, George A. Pfeifer. *Supt. Meter Dept.*, George B. Scott. 74 miles.

Bessemer Natural Gas Co., Bessemer, Law Co., Pa.

Pres., and Gen. Mgr., William Hedegore. *V. P.*, Leonard Shelley, Grove City, Pa. *Sec. and Treas.*, Leonard Levinson, 5338 Beeler St., Pittsburgh, Pa. 14 miles.

Big Horn Gas Co., Basin, Wyo.

Pres., P. G. Weidner. *V. P.*, John M. McFadyen. *Sec.*, J. F. Cullen. *Asst. Sec.*, L. G. Merriett. *Treas.*, T. K. Bishop. 82 miles.

Billings Gas Co., Billings, Mont.

Pres., W. M. Holland. *V. P.s, J. E. Moore*, E. B. Redpath, G. E. Snell. *Sec.*, C. A. Trowbridge. *Treas.*, J. A. Lee. *Gen. Supt.*, J. E. Moore. *Asst. Supt.*, Elmer Nielsen. *Foreman*, I. O. Perl, Bridger, Mont.

C

Canadian River Gas Co., Colorado Springs, Colo.

Pres., N. K. Moody, Tulsa, Okla. *V. P.s*, P. C. Spencer, New York, N. Y.; Albert R. Jones, Kansas City, Mo.; R. E. Wertz, Amarillo, Tex. *Sec. and Treas.*, George Baird, New York, N. Y. *Gen. Mgr.*, Robert W. Hendee. *Gen. Supt.*, R. A. Ford, Amarillo, Tex. *Asst. Gen. Supt.*, Max K. Watson, Amarillo, Tex. *Prod. Supt.*, E. H. Aderton, Amarillo, Tex. *Field Line Supt.*, R. W. Miller, Amarillo, Tex. *Supt.*, L. W. Jackson, Bivins Sta., Channing, Tex. *Pur. Agt.*, L. B. Whitefield. 230 miles.

Canadian Western Natural Gas, Light, Heat & Power Co., Ltd., The, 215 Sixth Ave., West, Calgary, Alberta, Canada.

Pres., H. R. Milner, *V. P. in chg. Oper.*, E. W. Bownes, *Sec. and Treas.*, H. S. Watts. *Gen. Supt and Ch. Engr.*, P. D. Mellon. *Asst. Supt* and *Engr.*, F. J. Heuperman. *Supt. of Calgary Distribution*, W. J. Gray. *Gen. Foreman of Distribution*, E. Coleman. *Ser. Foreman*, T. Dodds. *Trans. Line Foremen*, George Robinson, and J. G. Wise, 11th Ave. and 10th St., W. Calgary. *Bus. Mgr.*, H. E. Timmins. *Pur. Agt.*, H. W. Francis. *Shop Supt.*, N. D. MacKinnon, 11th Ave. and 10th St., W. Calgary. *Asst. Shop Supt.*, J. G. Dunn, 11th Ave. and 10th St., W. Calgary. *District Supt. and Prod. Supt.*, J. J. Morrison, Lethbridge, Alta. *Asst. District Supt.*, F. W. Paterson, Lethbridge, Alta. *Field Foreman*, R. Lalonde, Burdett, Alta. 628.3 miles.

Carnegie Natural Gas Co., 1014 Frick Bldg., Pittsburgh, Pa.

Pres., S. W. Meals. *V. P.*, W. McGilvray Shiras. *Sec.*, J. W. Hamilton. *Asst. Treas.*, H. T. Hamilton. *Gen. Supt.*, Clarence Sweeney. *Pipe Line Supt.*, H. J. Hess. *Div. Supts.*, H. A. Lowers, 24½ Harrison St., Munhall, Pa.; Paul D. Inghram, Waynesburg, Pa.; Rex P. Milliken, Mannington, W. Va.; J. Y. Dentzel, Leechburg, Pa. *Ch. Engrs.*, N. K. Clements, Leechburg, Pa.; W. O. Spitznogle, Hundred, W. Va.

Canton Municipal Utilities, Canton, Miss.

Supt., W. M. Reid. 22 miles.

Central Gas Utilities Co., The, Abilene, Kans.

Pres., W. S. Morrison. *V. P.*, R. B. Gemmill. *Sec.*, M. C. Beamer. *Treas.*, O. D. Small. *Plant Engr.*, W. J. Murray. *Dist. Mgrs.*, Ross Beach, Hays, Kans.; Homer Salter, Lamar, Colo.

Central States Power & Light Corp., Tulsa, Okla.

Pres., B. F. Pickard. *V. P.s*, W. F. Hebeler, Ed Danielson. *Sec. and Treas.*, E. C. Brown. *Prod. Supt.*, P. K. Sticelber. *Elec. Engr.*, C. A. Hummel. *Gas Engr.*, W. R. Kubista. *Pur. Agt.*, E. C. Wetter. *Dist. Mgrs.*, A. H. Burgess, Henryetta, Okla.; Charles Rich, Clinton, Okla.; R. W. Thatcher, Stillwater, Okla.; La Van Warren, Quinton, Okla.; J. W. Garman, Pampa, Tex.

Cherokee Public Service Co., Little Rock, Ark.

Trustee, W. D. Dickinson. *Mgr.*, J. R. Johnston, Wagoner, Okla. *Supt. and Engr.*, J. J. Cobb, Wagoner, Okla. 31 miles.

Cimarron Utilities Co., Borger, Tex.

Pres., Joseph F. Porter. *V. P.*, Streeter B. Flynn. *Sec. and Treas.*, Chester C. Smith. *Gen. Mgr.*, C. R Stahl, Drawer I, Borger, Tex. *Asst. Gen. Mgr.*, L. J. Roberts, Drawer I, Borger, Tex. *Gen. Supt.*, K. E. Sharp, Box R, Texhoma, Okla. *Pur. Agt.*, J. G. Cabbell, Drawer I, Borger, Tex. *Mgrs.*, D. D. Meredith, Boise City, Okla.; J. H. Settles, Texhoma, Okla.; C. B. Lisman, Hooker, Okla.; Carl Kerr, Beaver, Okla. 130.7 miles.

Cities Service Gas Co., Bartlesville, Okla.

Mgr., George H. Baird. *Office Mgr.*, C. G. Roth. *Supt. of Meas.*, C. A. Gibson. *Supt. of Pipe Lines*,

The pump side of main line pumping station, Oklahoma Pipe Line Co., Ardmore, Okla.

H. B. Milam. *Supt. of Compr. Sta.*, F. D. Renfro. *Supt. of Prod.*, R. M. Stuntz. *Dist. Supt.*, L. M. Batten, Pampa, Tex. *Div. Supts.*, W. T. Watters, Commerce, Okla.; F. M. Sweazy, Joplin, Mo.; H. S. German, Caney, Kans.; T. R. Clements, Drumright, Okla.; Jess Prisock, Tallant, Okla.; H. N. Peters, Ellsworth, Kans.; C. S. Smith, Winfield, Kans.; Ray Taylor, Okemah, Okla.; Roy Corn, Independence, Kans.; Pete Cheeseman, Petrolia, Kan.; Henry Peak, Kansas City, Kan.; Charles Short, Lawrence, Kans.; K. W. Wiand, Oklahoma City, Okla.; S .W. Hunsaker, Blackwell, Okla.; Burr Wiand, Emporia, Kans.; J. W. Jones, Wichita, Kans.; C. A. Cole, Mooreland, Okla.; Harry McDaniel, Pampa, Tex.; W. P. Benedict, Warrensburg, Mo. *Comp. Sta. Supts.*, A. L. Milan, Cambridge, Kans.; L. L. Baker, Caney, Kans.; G. W. Crane, Saginaw, Mo.; C. G. Anderson, Dilworth, Okla.; F. H. Caldwell, Matfield, Kansas.; E. Hughes, Grabham, Kans.; E. W. Keller, Altamont, Kans.; M. F. Canny, Mound Valley, Kans; J. R. Frederick, Ottawa, Kans.; F. E. Renner, Petrolia, Kans.; Howard Blackburn, Hutchinson, Kans.; S. H. Overstreet, Wellington, Kans.; G. T. Anderson, Thayer, Kans.; F. T. McAdams, Tallant, Okla.; Jewell Pace, Drumright, Okla.; Robert Ecclefield, Welda, Kans.; E. E. Van Laningham, Blackwell, Okla.; K. H. Yingling, Higgins, Tex.; J. H. Richardson, Corwin, Kans.; H. L. Hunsaker, Mooreland, Okla.; M. W. Hanna, Pampa, Tex.; D. H. Frederick, Wichita, Kans. 4,146.4 miles.

Cities Water Co. of Texas, Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Mgr.*, H. Beauchamp, Pecos, Tex. *Pur. Agt.*, F. D. Bradley.

Clayco Gas Co., Chamber of Commerce Bldg., Pittsburgh, Pa.

Officered by representatives of the South Penn Oil Co.

Colorado Interstate Gas Co., 30 Rockefeller Plaza., New York, N. Y.

Pres., H. C. Cooper. *V. P.s*, F. H. Lerch, Jr.; A. R. Jones. *Sec.*, E. E. DuVall. *Treas.*, F. H. Lerch, Jr. *Mgr.*, R. W. Hendee, Colorado Springs, Colo. 376 miles.

Colorado Wyoming Gas Co., 407 Continental Oil Bldg., Denver, Colo.

Pres., Frank R. Coates. *V. P.s*, W. A. Jones, C. J. Shortess. *Sec.*, H. P. Davis. *Treas.*, E. H. Johnston. *Gen. Mgr.*, C. J. Shortess. *Supt.*, W. L. Thackrey. *Compr. Supt.*, George C. Grill, Box 48, Arvada, Colo. *Meas. Engr.*, W. J. Giddings.

A Bank for Oil Men
IN ACTIVE TERRITORY

The Frost National Bank, through its cooperation with various productive industries of Southwest Texas, has played an important part in the growth of the great Southwest. In recent years, the greatest factor contributing to this growth has been the Oil Industry. Producers, refiners and marketers, both independent and major, have found satisfaction and safety in the use of one or more of the many phases of modern banking offered by the Frost National Bank.

It is and has always been our policy to go thoroughly into details of every proposition presented to us and where the requirements indicated are in accordance with the principles of good banking they are furnished with promptness and courtesy.

We invite members of the Oil Industry who require a banking connection in this territory to use the services and facilities of this bank.

Frost National Bank Directors

T. C. FROST, *Chairman of the Board*
JOSEPH MUIR, *Vice-Chairman of the Board*
J. H. FROST, *President*
JOHN FROST, *Capitalist*
T. C. FROST, JR., *Vice-President*
JOHN M. GADDIS, *Vice-President*
LYTLE W. GOSLING, *Pres., Lytle W. Gosling & Co.*
GUS J. GROOS, *Partner, E. B. Chandler & Co.*
EDWIN M. JONES, *Oil Producer*
H. L. KOKERNOT, *Cattleman*
J. H. LAPHAM, *Director, The Texas Co.*
NED McILHENNY, *Vice-President*
DICK PRASSEL, *Pres., Prassel Sash & Door Co.*
W. C. RIGSBY, *Retired Capitalist*
CHAS. SCHREINER, *Capitalist and Cattleman*
L. A. SCHREINER, *Pres., Chas. Schreiner Bank, Kerrville, Texas*
S. S. SEARCY, *Attorney at Law*

Total Resources Over $35,000,000

FROST NATIONAL BANK
SAN ANTONIO
SAFETY·COURTESY·PROMPTNESS

MEMBER FEDERAL DEPOSIT INSURANCE CORPORATION

Columbia Gas & Electric Corp., Corporate office, Wilmington, Del., Offices of Chairman and President, 61 Broadway, New York, N. Y.

Chm. of Bd., Philip G. Gossler. *Pres.*, Edward Reynolds, Jr. *Honorary V.P.*, Thomas B. Gregory. *V.P.* and *Gen. Mgr.*, Walter C. Beckjord. *V.P.s*, Hurbert C. Blackwell; Paul S. Clapp; Robert H. Delafield; W. Winans Freeman; Harry A. Wallace; Chauncey L. Weaver; Thomas R. Weymouth. *Sec.*, Howland H. Pell, Jr. *Treas.*, Francis B. Flahive.

Columbia Natural Gas Co., The, 545 William Penn Way, Pittsburgh, Pa.

Pres., J. French Robinson. *V. P.*, S. C. Preston. *Sec.* S. E. W. Burnside. *Treas.*, S. J. Ratcliffe. *Mgr.*, E. W. Williamson. *Supt.*, F. A. Benkert. *Supt. City Plants*, L. E. Ostrye.

Commonwealth Gas & Electric Co., 89 Broad St., Boston, Mass.

Pres., William C. Bell. *Treas.*, Harry Hanson. *Sec.*, John F. Mack.

Consolidated Gas Utilities Corp., Oklahoma City, Okla.

Pres., Logan W. Cory. *V. P.*, E. C. Joullian. *Treas.*, J. W. Metcalfe. *Div. Mgr.*, J. B. Owens, Neodesha, Kans. *Office Mgr.*, L. D. Kenyon, Neodesha, Kans.

Crosby Gas Co., Crosby, Pa.

Pres., W. H. Gallup. *V. P.*, C. L. Burt. *Sec.*, C. L. Burt. *Treas.*, W. H. Gallup. 14.2 miles.

Cut Bank Gas Utilities, Cut Bank, Mont.

Owner, Jerome L. Drumheller, Spokane, Wash. *Mgr.*, D. M. Drumheller, Jr. *Supt.*, Joseph J. Kennedy. *Office Mgr.*, Mrs. Grace D. Halvorson. 24 miles.

D

Del Rey Oil & Gas Co., Washington & Beach Sts., Venice, Calif.

Pres., A. E. Schiltz. *V. P.*, F. A. E. Lowell. *Sec.*, H. A. Wahlenberg. *Maintenance Foreman*, L. C. Vincent. *Test Foreman*, A. Pfeil. *Gas Meas. Foreman*, Otto Reinen. *Engr.*, Paul Magee.

Dominion Natural Gas Co., Ltd., The, 518 Jackson Bldg., Buffalo, N. Y.

Pres., H. L. Doherty, New York, N. Y. *V. P.s*, S. B. Severson; F. R. Coates, New York, N. Y.; W. A. Jones, New York, N. Y. *Sec.* and *Treas.*, J. A. Richie. *Pur. Agt.*, C. D. Lymburner. *Div. Supts.*, Charles H. Henderson, St. Catharines, Ont.; C. H. Lutz, Dunnville, Ont.; F. D. Howell, Brantford, Ont.; C. M. Sieger, Hamilton, Ont.; Lyle D. Burdick, St. Thomas, Ont. *Dist. Engr.*, George M. Merrill. *Meas. Engr.*, W. H. Hott. 1,209 miles.

E

East Ohio Gas Co., The, 1405 E. Sixth St., Cleveland, Ohio

Pres. and *Gen. Mgr.*, C. E. Gallagher. *V. P.*, J. J. McMahon. *Asst. Gen. Mgr.*, W. G. Hagan. *Sec.* and *Treas.*, W. G. Rogers.

El Paso Natural Gas Co., 1010 Bassett Tower, El Paso, Tex.

Pres., Paul Kayser. *V. P.s*, C. C. Cragin, A. L. Forbes, Jr. *Sec* and *Treas.*, J. E. Franey. *Gen. Supt.*, A. L. Forbes, Jr. *Supt of Trans.*, C. L. Perkins. *Supt. Comp. Sta.*, W. H. Miller. *Supt. Meas.*, R. H. Cowan. *Field Supt.*, Paul Wright, Jal, N. Mex. *Supt. Constr.*, J. F. Schaffer. *Treating Plant Supt.*, J. V. Cowan, Jal, N. Mex. *Ch. Engr.*, J. F. Eichelmann. *Ch. Dispatcher*, J. M. Stricklin. *Div. Foremen*, H. F. Steen; R. W. Harris, Jal, N. Mex.; John Newberry, Comp. Sta. No. 1; N. W. Meador, Comp. Sta. No. 2; L. A. Coussons, Gage, N. Mex.; L. M. Stricklin, Douglas, Ariz.; R. W. Walsh, Tucson, Ariz.; E. W. Woody, Casa Grande, Ariz.; E. E. Walsh, Phoenix, Ariz. 1,000 miles.

Empire Southern Gas Co., Box 229, Fort Worth, Tex.

Pres., R. W. Rea. *V. P.*, F. H. Coughlin. *Sec.* and *Treas.*, J. G. McClellan. 311.9 miles.

Empire Southern Service Co., Big Spring, Tex.

Pres., C. D. Perry. *V.P.*, F. C. Landers. *Sec.* and *Treas.*, H. P. Rainier. *Asst. Sec.* and *Treas.*, H. S. Coley. 59.7 miles.

Equitable Gas Co., 435 Sixth Ave., Pittsburgh, Pa.

Pres., F. R. Phillips. *V. P.s*, F. F. Schauer, Joseph McKinley. *Controller*, C. S. Mitchell. *Sec.*, W. B. Carson. *Treas.*, C. J. Braun, Jr. *Oper. Mgr.*, D. P. Hartson. *Gen. Supt. Prod.* and *Trans.*, H. H. Pigott. *Supt. Prod.* and *Geo.*, J. H. Newlon. *Supt. Comp. Sta.*, J. Bonsall, Union National Bank Bldg., Clarksburg, W. Va. *Gen. Supt. Dist.*, T. H. Kendall. *Land Agt.*, J. M. Shields. 2,529 miles.

F

Fayette County Gas Co., 800 Union Trust Bldg., Pittsburgh, Pa.

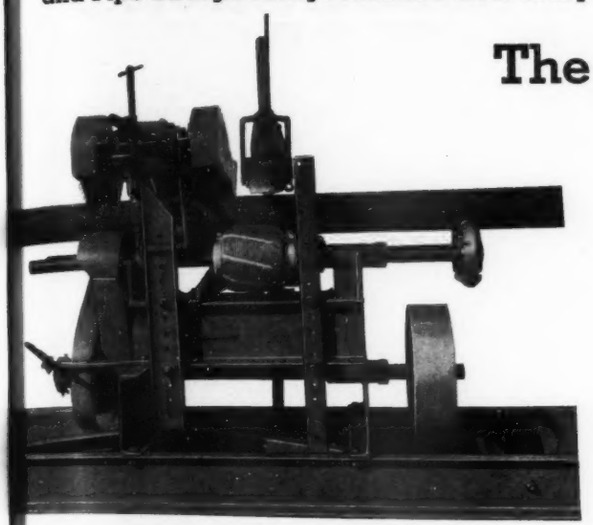
Pres., C. E. Bennett. *V.P.*, E. J. Egan. *Ind. Fuel Engr.*, T. E. Wood. *New Bus. Mgr.*, W. F. Reid. 269 miles.

Fidelity Gas Co., Aliquippa, Pa.

Pres., W. S. Kidd, Jr. *V. P.* and *Treas.*, W. A. Bliss.

O-K Pipe Cleaning Machines and Pipe Straighteners

Designed and built by a pioneer machine manufacturing organization which has served the great oil industry of the Mid-Continent field, O-K Pipe Cleaning and Pipe Straightening Machines meet every requirement for speed, endurance and economical operation. Scores of the leading oil companies, pipe line companies and pipe yards have had years of satisfactory service out of O-K equipment.



The O-K PIPE CLEANING MACHINE

PIPE LINE MODEL

Gives Fast, Efficient and Economical Pipe Cleaning for Proper Protection, Inspection and Grading of Pipe.

PIPE LINE MODEL: Master brushing attachment (two 12″ steel brushes)—adjustable—turning at 2000 R. P. M.—gives 100% cleaning job. "O. K." Pipe Loading and Unloading Device, for safe, quick movement of pipe. Adjustable for 2″ to 12″ pipe. Designed and built for long life and low maintenance cost. Cutter rollers are one piece hardened steel. Resharpening service available at our Tulsa plant.

Length 30 feet — Four Carrier Stands

WE ALSO MAKE

O. K. PIPE DENT REMOVER

PIPE CUT-OFF ATTACHMENT available for both models

O-K Hydraulic Pipe Straightener

Model D—Hand or Power Operated

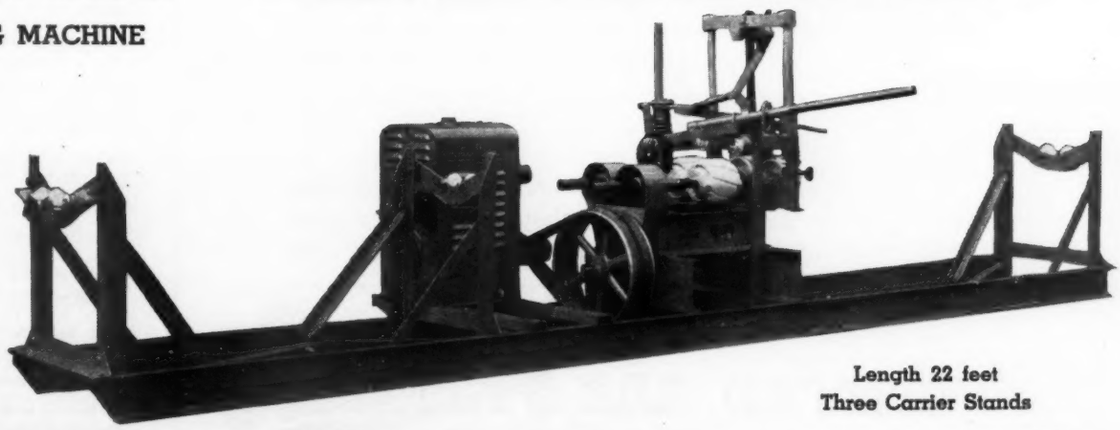
ompact, powerful Pipe Straightening Ma-ne, designed and built by pipe recondition- engineers . . . Ample capacity (60,000 lbs.) all pipe and casing up to 8 in. Especially apted for use in straightening drill pipe, y bars and structural shapes. Noted for quick and easy operation. Adjustable at needed points. Made in larger sizes. Min-m maintenance expense.

NUFACTURED BY THE SOUTHWEST'S LEADING KERS OF PIPE RECONDITIONING MACHINERY

HE O. K. PIPE CLEANING MACHINE MODEL A

el A—a lighter machine than Pipe Line Model is built espe- for small jobs and yard work. one 12″ steel brush. 1,000 M. Length 22′. Weight 1,800 ds.

etails from your Supply Com-; the Composite Catalog; or for Illustrated Literature.



Length 22 feet
Three Carrier Stands

O-K MACHINE & MANUFACTURING CO.

-21 East First Street

Tulsa, Okla., U.S.A.

27 Years Service to the Oil Industry

Ford, Mrs. H. L., Barnes, Pa.

Owner, Mrs. H. L. Ford. 7 miles.

Fort Dodge Gas & Electric Co., Fort Dodge, Iowa

Pres., B. J. Denman. *V. P.s*, T. C. Roderick, L. H. Heinke. *Sec.*, L. H. Heinke. *Gen. Mgr.*, T. C. Roderick. *Gen. Supt.*, W. H. Hogan. *Asst. Supt.*, Fred F. Kratosky. *Gas Plant Supt.*, John O. Benway. *Shop Foreman*, Harold Osmanson. 7.589 miles.

Fort Smith Gas Co., 23 N. Eighth St., Fort Smith, Ark.

Pres., A. B. Harper. *V.P.*, S. R. Walker. *Sec.*, R. A. DeLong. *Treas.*, John W. Bell. *Pur. Agt.*, S. R. Walker. *Constr. Supt.*, John Henson. *Auditor*, John W. Bell.

Frankfort Kentucky Natural Gas Co., Lexington, Ky.

Pres., D. L. Hazelrigg. *V. P.*, Joseph E. Harting. *Sec.* and *Treas.*, T. J. Tonkin, Jr.

G

Gas Co. of New Mexico, The, Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Gen. Mgr.*, J. R. Cole, Santa Fe, N. Mex. *Dist. Mgr.*, Van Thompson, Clovis, N. Mex.

Gas Oil Products, Inc., Oxford, Pa.

Pres., John H. Ware, Jr. *V. P.s*, John H. Ware III, Willard M. Ware. *Sec.*, L. J. Ostermayer. *Treas.*, John H. Ware III. 36 miles.

Godfrey L. Cabot, Inc., 77 Franklin St., Boston, Mass.

Pres., Godfrey L. Cabot. *V.P.s*, Ralph Bradley; Edmond Billings. *Sec.*, Fred. C. Fernald. *Treas.*, Thomas D. Cabot. *Gen. Mgr.*, Thomas D. Cabot.

H

Hamilton Gas Co., 144 East 44th St., New York, N. Y.

Pres., W. Angamar Larner. *Sec.*, Charles Chandler.

Hazel Hurst Gas Co., 22 Greeves St., Kane, Pa.

Pres., E. Kent Kane. *Sec.*, Ray B. Kane. *Treas.*, E. O'Neil Kane, Jr.

Healdton Pipe Line Corp., 1012 Tradesmens Bank Bldg., Oklahoma City, Okla.

Pres., J. H. Keefe, Chicago, Ill. *V.P.* and *Gen Mgr.*, H. L. Briggs. *Sec.*, C. W. Sowle. *Treas.*, J. W. Price. 76.95 miles.

Home Pipe Line Co., Cushing, Okla.

Pres., Andrew W. Little. *V. P.*, L. D. Gaunt. *Sec.* and *Treas.*, Harry Melzl. *Supt.*, H. T. Eagle. 5½ miles.

Hope Natural Gas Co., 545 William Penn Way, Pittsburgh, Pa.

Pres., Howell C. Cooper. *V. P.s*, L. L. Tonkin, J. C. Chisler. *Sec.*, S. E. W. Burnside. *Treas.*, J. C. Chisler. *Gen. Mgr.*, H. C. Cooper. *Ch. Engr.*, L. L. Tonkin. *Gen. Supt.*, W. B. Gibble, Clarksburg, W. Va. *Asst. Gen. Supts.*, C. C. Reed; John A. Clark, Clarksburg, W. Va. *Supt. Main Line Dept.*, L. G. Kinchelow, Clarksburg, W. Va. *Supt. Meter Dept.*, J. G. Mallory, Clarksburg, W. Va. *Div. Supts.*, J. H. Mayfield; J. B. Corrin, Jr., J. J. Logue; C. M. Fleming, Charleston, W. Va. 4,894 miles.

Houston Pipe Line Co., Petroleum Bldg., Houston, Tex.

Pres., George A. Hill, Jr. *V. P.*, L. S. Zimmerman. *Vice President* and *General Manager*, C. Lee Wood. *Sec.*, A. H. Kennerly. *Treas.*, L. S. Zimmerman. *Sales Mgr.*, Robert L. Dabney. *Supt. Comp. Sta.*, W. E. Smith, Dinero, Tex. *Supt of Fields*, Rex West, Box 991, Beeville, Tex. *Dist. Supt.*, H. D. Carmouche. *Supt of Meas.*, C. J. Brown. *Asst. Supt of Meas.*, James L. Burke. *Ch. Engr.*, F. Y. Hutchison. *Ch. Engrs. Comp. Sta.*, W. H. Coster, Woodsboro, Tex.; G. P. Parker, Box 268, Hebbronville, Tex.; Clarence Robbins, Dinero, Tex.; L. E. Wagstaff, Box 505, Edna, Tex. *Field Foremen*, H. C. Shaw, Box 268, Hebbronville, Tex.; H. J. Worth, Woodsboro, Tex.; Jack Everman, Dinero, Tex. *Dist. Foremen*, R. D. Parker; Floyd Curtsinger, Freeport, Tex.; T. A. Chappell, Wharton, Tex.; E. E. Trapp, Box 464, Victoria, Tex.; Charles Anderson, Box 505, Edna, Tex.; Eddie Rimmer, Box 790, Bay City, Tex. 615.93 miles.

I

Indiana Gas Distribution Corp., 99 N. Front St., Columbus, Ohio

Pres., C. I. Weaver. *V. P.s*, E. M. Tharp, T. H. Kerr, W. L. McCloy. *Sec.*, P. A. Alberty. *Treas.*, E. D. Bivens. 47.3258 miles.

Indiana Southwestern Gas Corp., Vincennes, Ind.

Pres., R. D. Brown. *V. P.*, Albert E. Thompson. *Sec.* and *Treas.*, D. L. Rinehart. *Gen. Mgr.*, R. E. Eckel. 150 miles.

Industrial Gas Co. of Oklahoma, 1216 Hales Bldg., Oklahoma City, Okla.

Pres., R. K. Johnston, First National Bank Bldg. *V. P.*, H. O. Pope. *Sec.* and *Treas.*, A. H. Mahnker, First National Bank Bldg. *Supt.*, Matt Bumgardner. 25 miles.

Inland Gas Corp., Ashland, Ky.

Trustee, Ben Williamson, Jr. *Gen. Supt.*, O. H. Horne. *Pur. Agt.*, R. D. Soper. *Supt. Gas Meas.*, H. R. Stump. *Comb. Engr.*, J. H. Baxter. *Constr. Engr.*, W. A. Horne. *Field Supt.*, Mike Staley, Lackey, Ky. *Sta. Supt.*, V. O. Ward, Prestonsburg, Ky. *Foremen*, Goble Granham, Prestonsburg, Ky.; R. E. Moore, Hueysville, Ky.; D. Reed, Lackey, Ky.; C. Barnett, Harold, Ky.; L. Howard, Ashland, Ky. 279.12 miles.

Interstate Gas Co., Harrisonville, Mo.

Pres., Paul H. Eames. *V. P.*, Leo Loeb. *Sec.*, W. F. Stanley. *Treas.*, J. B. Adams. *Gen. Mgr.*, G. V. Hassinger. *Local Mgr.*, J. E. Baily. *Auditor*, R. H. French. *Local Mgrs.*, Wilson Hearson, Drexel, Mo.; Reid Wilson, Pleasant Hill, Mo.; Walter Wright, Holden, Mo. 72 miles.

Interstate Natural Gas Co., Inc., 30 Rockefeller Plaza, New York, N. Y.

Pres., F. H. Lerch, Jr. *V. P.*, W. A. Dougherty. *Sec.*, E. E. Duvall. *Treas.*, James Comerford. *Gen. Supt.*, John Gordon, Monroe, La. 334.72 miles.

Iowa Nebraska Light & Power Co., Lincoln, Neb.

Pres., L. R. King. *V. P.*, George A. Lee. *Sec.* and *Treas.*, W. M. Fenton. *Asst. Gen. Mgr.*, F. J. Gunther. *Gas Engr.*, E. E. Miller. 66.891 miles.

J

James City Gas Co., 108 Chestnut St., Kane, Pa.

Pres., William R. James. *Sec.*, E. H. James.

K

Kentucky Natural Gas Corp., 423 W. Third St., Owensboro, Ky.

Pres., J. H. Hillman, Jr., Pittsburgh, Pa. *V. P.* and *Gen. Mgr.*, W. J. Hinchey. *Sec.*, H. A. Sprowls, Vincennes, Ind. *V. P.* and *Treas.*, Charles A. Meyer, Pittsburgh, Pa. *Asst. Sec.* and *Asst. Treas.*, W. T. Stevenson. *Pur. Agt.*, H. F. Keith. *Supt. of Trans.*, H. C. Nunn. *Supt of Distribution*, H. H. Walker. *Supt. of Compressors*, Charles E. Curry. *Supt. of Meas.*, D. L. Benson. *Supt. of Prod.*, H. C. McKinley. *Dist. Supts.*, W. J. Theis, Charlie Cook, L. B. Benson, R. L. Robards.

Kevin Gas Distribution, Kevin, Mont.

Pres., J. H. Agen. *V. P.* and *Mgr.*, Fred M. McPhillips. *Sec.* and *Treas.*, M. J. Rader. 3 miles.

UNITED GAS SYSTEM

INSIGNIA OF SERVICE

● Beyond the natural gas border station at the outskirts of your community is a story of adventure, of work and worry . . . a human interest story of many hands at the task of providing a dependable Natural Gas Service.

In some far thicket, the clank of a drilling rig . . . the rattle of pipe as it rolls into place in a roadside pipeline . . . the scratch of a pen in a remote farm house as a Natural Gas lease is signed . . . for the moment, consider these things simply as men and women working, dedicating their energies to the service whose symbol is pictured here.

Beyond the many functions of modern Natural Gas production and transmission are the employes who constitute it — a loyal, efficient army, some of them perhaps your neighbors, or citizens and taxpayers in your community.

The payrolls to compensate this United Gas System army are large. Yet they are only a part of the cost of operating a dependable Natural Gas Service.

●

UNITED GAS SYSTEM

NATURAL GAS—THE MATCHLESS FUEL FOR HOME AND INDUSTRY

Ozalid OFFERS THE SIMPLEST, FASTEST AND MOST ECONOMICAL METHOD OF MAKING PERFECT POSITIVE TRUE-TO-SCALE PRINTS

Whether you operate a crude-oil, gasoline or natural-gas pipe-line, you can not only effect substantial savings in drafting time, but save space, material, eyes and errors through the use of the Ozalid Process, for this revolutionary photo-reproduction process meets every requirement peculiar to the oil and gas industries.

Saves drafting time

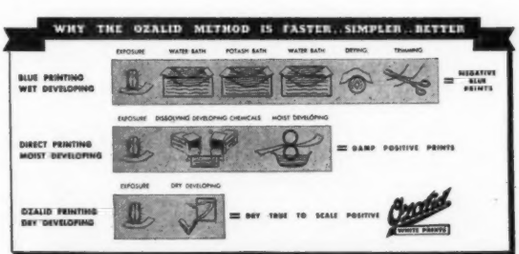
Time-saving short-cuts in drafting time can be effected with Ozalid Transparent Duplicates. One company, for example, did not prepare new right-of-way drawings when relaying a line, but prepared a transparent duplicate of the old tracing on No. 4114 Ozalid Transparent Paper, eradicated the original pipe-line and data with Ozalid Corrector Fluid, drew in the new pipe-line and data and used this transparent medium as a tracing for making subsequent prints . . . without defacing the original tracings, redrawing surrounding detail, or resorting to time-consuming and costly cumbersome reproduction methods.

Saves time in the print room

The fastest reproduction process ever developed! The turn of a switch, a few minutes for warming up . . . the two simple steps of exposure and dry development . . . and the print is finished. There are no fussy solutions or intricate baths to prepare . . . no washing, no drying of prints or equipment.

Saves space and is portable

A complete unit for the average office is less than 54 inches long, 28 inches wide, 24 inches high . . . and is so clean and compact that it can be operated on a table top in the drafting room. Another unit is ideal for a field office or construction shack . . . weighs but 60 pounds yet handles all Ozalid Materials up to and including 36 inches in width and has a maximum developing speed of 18 linear inches per minute.



Saves eyes, errors and materials

Clean, clear Ozalid White Prints are easier to read, check and correct . . . prevent those costly mistakes often caused when details, notes and corrections are obscured by a dominating blue background or by undependable developing methods. There are no chemicals to splash or stain these prints . . . vapor from one gallon of ammonia will develop 10,000 square feet of prints and due to dry development, there is no trimming waste with cut sheets of Ozalid Papers and Cloths.

Investigate this new source of savings

The savings in time and materials alone are often sufficient to exceed the moderate first cost of Ozalid Equipment within the first month . . . and then pay a generous dividend throughout years of service. Write for complete information . . . the convenient coupon will bring samples of prints and prices without obligation or cost.

Ozalid
TRADE MARK REG. U.S. PAT. OFF.
WHITE PRINTS

OZALID CORPORATION, 354 FOURTH AVENUE, NEW YORK, N. Y.

OZALID CORPORATION
354 Fourth Avenue, New York, N. Y.

Please send at once full details of Ozalid Process together with samples or prints and prices . . . all without obligation.

NAME .....

COMPANY .....

STREET .....

CITY ..... **STATE** .....

O&G-9

Kingfisher County Gas Co., Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Dist. Mgr.*, A. C. Black, Kingfisher, Okla. *Pur. Agt.*, F. D. Bradley.

L

Laughner Oil & Gas Co., South Heights, Beaver Co., Pa.

Pres., E. E. Laughner. *V.P.*, Lester E. Laughner. *Sec.* and *Treas.*, John C. Bauder. *Supt.*, J. W. Hager, New Sheffield, Pa. *Foreman*, H. E. Morrow, Coraopolis, Pa.

LeFlore County Gas & Electric Co., Poteau, Okla.

Pres., Charles T. Orr. *V. P.*, Raymond F. Orr. *Sec.* and *Treas.*, C. B. Saviers. *Prod. Supt.*, H. A. Sickmann. *Booster Sta. Supt.*, George F. Allen.

Lone Star Gas Co., 1915 Wood St., Dallas, Tex.

Pres., L. B. Denning. *V. P.s*, R. A. Crawford, F. L. Chase, E. F. Schmidt, D. A. Huley. *Sec.* and *Treas.*, D. L. Cobb. *Gen. Supt* and *Chief Engr.*, J. L. Foster. *Prod. Supt.*, T. W. Sutherland. *Supt. Comp. Dept.*, B. L. Rogers. *Supt. Gasoline Dept.*, J. R. Jarvis. *Asst. Supt. Comp. Dept.*, O. H. Moore. *Asst. Supt. Gaso. Dept.*, Paul C. Coffin. *Supt. Gas Meas. Dept.*, D. A. Sillers. *Asst. Supt. Gas Meas. Dept.*, E. E. Stovell. *Prod. Engr.*, J. H. Dunn. *Asst. Prod. Engr.*, L. T. Potter. *Supt. Maint.* and *Insp.*, J. A. Martin, *Stargas Sales Mgr.*, J. W. Martin. *Ind. Engr.*, E. J. Hatzenbuehler. *Pur. Agt.*, B. R. Newbery. *Asst. Pur. Agts.*, Joe Brown, W. G. Nash. *Supvr. of Stores*, C. F. Wilson. *Asst. Supvr. of Stores*, E. L. Harpold. *Supvr. of Safety*, A. W. Breeland. *Supt. of Pipe Lines*, R. Vandercook. *Asst. Supt. of Pipe Lines*, Luther Tolbert. *Office Engr.*, R. A. Minter. *Geologist*, F. E. Kendrick. *Right of Way* and *Claims*, Ralph Shaw. *Traf. Mgr.*, W. A. Rowsey. *Pipe Line Foremen*, James T. Bickley, Box 783, Coleman, Tex.; E. K. Smith, Box 758, Ranger, Tex.; George Minton, Box 88, Joshua, Tex.; J. I. Pearce, Box 143, Richland, Tex.; Mark Black, Box B, Duncan, Okla.; W. F. Crook, Rt. 1, Abilene, Tex.; Fred Smith, Box 253, Petrolia, Tex.; Aubrey Boyd, Rt. 1, Cayuga, Tex.; Eldon Glenn, Rt. 5, Box 632, Waco, Tex.; T. E. Waddill, Rt. 6, Box 268, Fort Worth, Tex.; W. K. Weaver, Drawer 349, Shamrock, Tex.; W. G. Webb. Box 86, Gordon, Tex.; Tod Pazdral, Box 478, Irving. Tex.; J. N. Carpenter, Box 567, Gainesville, Tex.; J. A. Martin, Box 1680, Vernon, Tex.; G. C. Reed, 209 West Wise, Bowie, Tex. *Gasoline Dept. Foremen*, J. E. Johnson, Rt. 1, Cisco, Tex.; F. H. Townsend, Gordon, Tex.; H. C. Wells, Hollis, Okla.; John Kindle, Box 236, Trinidad, Tex.; C. R. Rogers, Petrolia, Tex. *Prod. Dept. Foremen*, F. D. Posey, Box 165, Petrolia, Tex.; P. B. Sutherland, Box 398, Strawn, Tex.; C. L. Sutherland, Box 1007, Duncan, Okla.; H. C. Kelley, Box 68, Ranger, Tex. *Comp. Dept. Foremen*, S. M. Gamble, Box 758, Ranger, Tex.; W. E. Johns, Box 398, Healdton, Okla.; C. W. Cardwell, Box 107, Duncan, Okla.; M. W. Crowder, Box 88, Joshua, Tex.; Ralph Shipp, Petrolia, Tex.

Lone Star Gasoline Co., 1915 Wood St., Dallas, Tex.

Pres., L. B. Denning. *V. P.s*, F. L. Chase, E. F. Schmidt, D. A. Hulcy. *Sec.* and *Treas.*, D. L. Cobb. *Gen. Supt.*, J. R. Jarvis. *Asst. Gen. Supt.*, P. C. Coffin. *Div. Supts.*, Harry Wheeldon, Box 788, Ranger, Tex.; J. A. Bates, Box 1452, Breckenridge, Tex. *Sales Mgr.*, A. F. Garrett. *Traf. Mgr.*, W. A. Rowsey. 295 miles.

M

Manufacturers Light & Heat Co., 800 Union Bldg., Pittsburgh, Pa.

Pres., C. E. Bennett. *V.P.*, E. J. Egan. *Ind. Fuel Engr.*, T. E. Wood. *New Bus. Mgr.*, W. F. Reid. 4,169 miles

M. & M. Pipe Line Co., Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Pur. Agt.*, F. D. Bradley. *W. Tex. Dist. Mgr.*, H. Beauchamp, Pecos, Tex. *S. Tex. Dist. Mgr.*, H. C. Frizzel, Bellville, Tex.

Mars Co., The, 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, A. C. Burwell. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Treas.*, M. J. Talley. *Pur. Agt.*, M. J. Connor.

Mercer County Gas Co., 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, W. H. Locke. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Sec.* and *Asst. Treas.*, M. J. Talley. *Asst. Treas.*, F. P. Ginkel. *Supt. of Distribution*, P. L. Mulkin. *Pur. Agt.*, M. J. Connor.

Mississippi River Fuel Corp., Continental Bldg., St. Louis, Mo.

Pres., H. C. Cooper. *V. P.* and *Mgr.*, Ben C. Comfort. *V. P.* and *Treas.*, F. H. Lerch, Jr. *Sec.*, Reid L. Carr. *Asst. to V. P.* and *Mgr.*, George M. Parker. *Asst. Treas.*, Lawrence H. Simpson. *Oper. Asst. to V. P.* and *Mgr.*, Arthur W. Commerville. *Supt. Main Line* and *Sta.*, Renard Z. Snyder. *City Supt.*, Harry E. Faith. *Asst. City Supt.*, Felix J. Martin. *Engr.* Howard G. Graham. *Rights of Way* and *Tax Agt.*, George C. Crouse. *Engr. in chg. Gas Meas.*, Karl A. Bosmyer. *Sta.* and *Main Line Engr.*, Albert G. Hoge, Monroe, La. *Supt. Comp. Sta.*, Allen W. Joiner, Poplar Bluff, Mo. *Asst. Supt Comp. Sta. in chg. Cooper-powered Sta.*, LeRoy M. Gibson. *Main Line Supt.*, Ray W. Bargar, Poplar Bluff, Mo. *Foremen Comp. Stas.*, John H. Young, Bastrop, La.; T. C. McLellan, Star City, Ark.; Robert E. Baum, West Point, Ark.; Bert B. Bush, Biggers, Ark.; Holly M. Gillespie, Zion Mo. *Div. Foremen*, Albert B. Willey, Crossett, Ark.; James C. Lemon, Wilmar, Ark.; Roe W. Hollis, Carlisle, Ark.; James G. Reese, Newport, Ark.; Jasper N. Hart, Poplar Bluff, Mo.; Clarence R. Garrett, Zion, Mo.; James A. Sullivan, Farmington, Mo. *Supt. Aerial Patrol* and *Trans.*, Clair B. McMahan.

Monongahela West Penn Public Service Co., Fairmont, W. Va.

Pres., A. C. Spurr. *V. P.s*, O. F. Lough, J. K. Buchanan, C. H. Leatham. *Sec.* and *Treas.*, S. E. Miller. *Mgr.*, G. W. Harr. *Ch. Clerk*, E. L. Moore. *Gen. Field Supt.*, G. H. Jackson. *Supt. Fairmont Field*, L. N. Snoderly. *Supt. Morgantown Field*, Harry E. Wilson. *Supt. Comp. Sta.*, K. H. Bane, *Supt. Fairmont Distribution*, J. R. Henderson. *Supt. Morgantown Distribution*, J. W. Allison. *Geologist*, H. C. Ice. *Gas Sales Engr.*, C. M. Freker. *Supt. Meter Shop*, T. K. Heck. 470.84 miles.

Montana-Dakota Utilities Co., 831 Second Ave., South, Minneapolis, Minn.

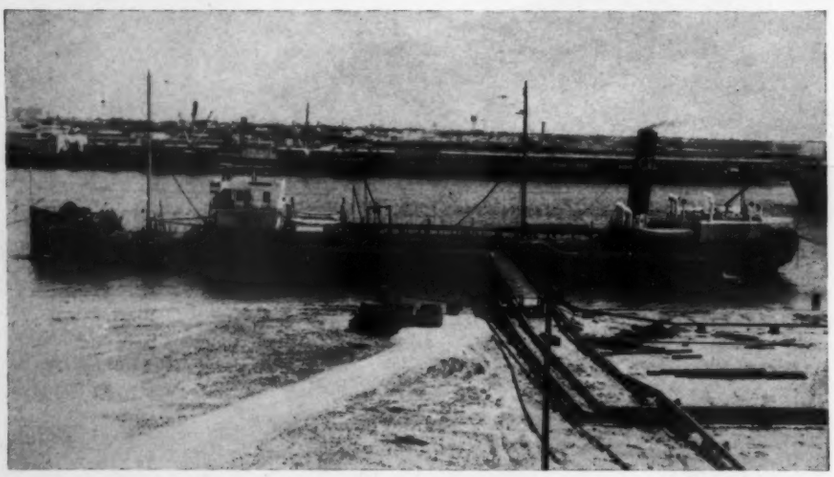
Pres., C. C. Yawkey. *V. P.*, Ben Alexander. *V. P.* and *Treas.*, R. M. Heskett. *Sec.*, A. P. Woodson. *Gen. Mgr.*, R. M. Heskett. *Ch. Engr.*, C. W. Smith. *Gas Engr.*, H. M. Frederickson. *Div. Mgrs.*, James Trimble, Bismarck, N. Dak.; V. M. Cleaveland, Williston, N. Dak.; Noel Carrico, Glendive, Mont.; Robert Naylor, Miles City, Mont.; Harlan Scott, Great Falls, Mont.; F. S. Marion, Havre, Mont.; James Phillips, Glascow, Mont.; H. A. Schroth, Baker, Mont.; C. B. Aasness, Rapid City, S. Dak.; E. W. Browne, Sheridan, Wyo. *Field Supts.*, R. H. Robinson, Baker, Mont.; Clyde Keys, Shelby, Mont. 1,633.4 miles.

Montana Pipe Line Co., Pence Bldg., Minneapolis, Minn.

Pres., H. M. Baskerville. *Sec.* and *Treas.*, John P. Akolt. *Gen. Mgr.*, T. L. Alford. *Ch. Acct.*, A. Stevens. 21 miles.

Mountain Fuel Supply Co. (Utah), 539 S. Main St., Findlay, Ohio

Ch. of Bd. and *Treas.*, T. B. Gregory, 800 Union Trust Bldg., Pittsburgh, Pa. *Pres.*, O. D. Donnell. *V. P.s*, L. B. Denning, 1915 Wood St., Dallas, Tex.; J. M. Simpson, 800 Union Trust Bldg., Pittsburgh, Pa.; J. C. Donnell, II; R. M. Redding, 301 S. Harwood, Dallas, Tex.; J. D. Roberts, 36 S. State St., Salt Lake City, Utah; C. L. Fleming; John McFadyen, Wolcott and A Sts., Casper Wyo.; C. R. Hetzler, Rock Springs, Wyo. *Sec.* and *Asst. Treas.*, F. B. Firmin. *Asst. Sec.* and



The Port of Corpus Christi has three modern oil docks to handle the oil moving through this point.

23 PIPE LINES

A net work of pipe lines criss cross the productive South Texas empire, bringing oil to ship side at the Port of Corpus Christi.

The Navigation District operates three oil docks, all with 33-foot water depths. Two are situated in the Port's main turning basin, measuring 1000 by 3000 feet; the other is in the Avery Point turning basin, terminus for the harbor's industrial canal.

Based on August allowables, the 6183 wells located within a few hours ride of Corpus Christi are producing 232,333 barrels of "black gold" a day. Development is just beginning, authorities claim. And a great part of this flood of oil reaches Corpus Christi and its modern Port through 23 pipe lines entering the Navigation District's properties, or land immediately adjacent thereto.

Manufacturers and distributors of oil field and oil well supplies should investigate Corpus Christi. It IS the Oil Capital of the South Texas Empire.

The Port of Corpus Christi offers shippers every desirable facility

Address
The Nueces County Navigation Commission

The Port of Corpus Christi Texas

Asst. Treas., E. B. Redpath; L. C. Olpin, 36 S. State St., Salt Lake City, Utah. *Asst. Secs.*, Hal W. Stewart; A. Baker, Wolcott and A Sts., Casper, Wyo. *Asst. Treas.*, V. E. Brooks, 36 S. State St., Salt Lake City, Utah; C. H. Gobrecht, 36 S. State St., Salt Lake City, Utah; L. C. Peschel. 420.55 miles.

Mountain State Gas Co., 35 E. Wacker Drive, Chicago, Ill. (Subsidiary of the Pure Oil Co.)

Pres., D. D. Irwin. *V. P.*, Henry Hauseman. *Sec.* and *Treas.*, C. H. Jay. *Ch. Acct.*, G. K. Barney. *Ch. Engr.*, D. E. Sullivan. *Gen. Mgr.*, J. A. Waggoner, Dawes, W. Va. *Supt.*, O. M. Lovell, Cabin Creek, W. Va. 39 miles.

N

Natural Gas Co. of West Virginia, 800 Union Trust Bldg., Pittsburgh, Pa.

Pres., C. E. Bennett. *V.P.*, E. J. Egan. *Ind. Fuel Engr.*, T. E. Wood. *New Bus. Mgr.*, W. F. Reid. 991 miles.

Natural Gas Pipe Line Co. of America, 20 N. Wacker Drive, Chicago, Ill.

Pres., W. Alton Jones. *V. P.*, Floyd C. Brown. *Sec.*, S. E. Campbell. *Treas.*, E. H. Johnston. *Div. Supts.*, E. D. Warren, Box 18, Harper, Iowa; H. E. Smith, Box 743, Great Bend, Kans.; M. V. Burlingame, Heizer, Kans.; M. J. Cook, Beatrice, Nebr. *Supt. of Meters*, Earl S. Rush, Box 908, Joliet, Ill. *Dist. Supts.*, D. C. Palm, Geneseo, Ill.; L. S. Duddleston, Truro, Iowa. *Supt. Compressor Sta.*, W. H. Davidson. *Supt of Pipe Lines*, R. G. Strong. 958.6089 miles.

New Mexico Gas Co., The, Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *V.P.* and *Gen. Mgr.*, J. R. Cole, Santa Fe, N. Mex. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Pur. Agt.*, F. D. Bradley. *Dist. Mgr.*, J. H. Wilson, Santa Fe, N. Mex.

New York State Natural Gas Corp., 545 William Penn Way, Pittsburgh, Pa.

Pres., J. French Robinson. *V. P.s*, F. H. Lerch, Jr., J. C. Trees. *Sec.*, E. E. Duvall. *Treas.*, F. H. Lerch, Jr. *Supt.*, J. M. Chilcote. *Asst. Supt.*, R. W. Powell.

North East Heat & Light Co., 24 S. Lake St., North East, Pa.

Pres., Stephen T. Lockwood. *Sec.*, C. O. Zimmerman, *Treas.*, R. I. Thompson. *Supervisor of Oper.*, R. I. Thompson. *Local Rep.*, John G. Watt. 20.12 miles.

Northern Natural Gas Co., 310 Aquila Court Bldg., Omaha, Neb.

Pres., F. H. Brooks. *V. P.s*, B. J. Denman, L. B. Denning, J. D. Mortimer. *Sec.*, D. A. Hulcy. *Treas.*, W. D. Gale. *Asst. Sec.* and *Asst. Treas., Asst. to Pres.*, J. F. Merriam. *Gen. Counsel*, R. J. Organ. *Ch. Engr.* and *Supt of Oper.*, H. J. Carson. *Asst. Ch. Engr.*, K. N. Fancher. *Supt. of Trans.*, and *Compression*, S. W. Taft. *Gen. Auditor*, A. B. Dilworth. *Supt. of Distribution*, R. L. Harrison. *Pur. Agt.*, C. F. Martin. 2,500 miles.

Northern Oklahoma Gas Co., Ponca City, Okla.

Pres., D. C. Williams. *V.P.*, J. A. Shoemaker. *Sec.*, Samuel S. Sherman, Jr. *Treas.*, Wm. H. Hill. *Supt.*, J. E. Shobe.

Northwestern Natural Gas Corp., 1248 First Ave., S., Seattle, Wash.

Pres., R. B. Newhem. *V. P.*, S. A. McCune. *Sec.* and *Treas.*, Louis Hoefle. *Field Supt.*, J. H. Mann, Benton City, Wash. *Oper. Mgr.*, S. A. McCune, Toppenish, Wash. 120 miles.

Northwestern New York Gas Co., 518 Jackson Bldg., Buffalo, N. Y.

Pres., H. L. Doherty, New York City. *V. P.*, S. B. Severson. *Sec.* and *Treas.*, J. A. Richie. *Div. Supt.*, J. F. Sweeny, Dunkirk, N. Y. *Supt. of Prod.*, F. Fair. *Distribution Engr.*, George M. Merrill. *Meas. Engr.*, W. H. Hott. *Pur. Agt.*, C. D. Lymburner. 95 miles.

Northwestern Ohio Natural Gas Co., The, 99 N. Front St., Columbus, Ohio

Pres., C. I. Weaver. *V. P.s*, E. M. Tharp, T. H. Kerr. *Sec.*, P. A. Alberty. *Treas.*, E. D. Bivens. 576.2100 miles.

Northwestern Utilities, Ltd., 10124 104th St., Edmondton, Alberta, Canada

Pres., H. R. Milner. *V. P.*, E. W. Browness. *Gen. Mgr.*, Julian Garrett. *Sec.* and *Treas.*, J. B. Whelihan. *Gen. Supt.*, G. W. Breen. *Field Supt.*, H. R. Booke, Viking, Alta. *Trans. Line Supt.*, F. G. Imler, Tofield, Alta. *Bus. Mgr.*, E. F. McGarvey. *Comp. Dept. Mgr.*, C. E. Wiggins. *Engr.*, E. Nelson. *Distribution Supt.*, A. J. Danes. 297.65 miles.

O

Ohio Fuel Gas Co., The, 99 N. Front St., Columbus, Ohio (and subsidiaries)

Pres., C. I. Weaver. *V. P.s*, T. H. Kerr, W. L. McCloy. *V. P.* and *Gen. Mgr.*, E. M. Tharp. *Sec.*, P. A. Alberty. *Treas.*, E. D. Bivens. *Engrs.*, A. E. Bradbury, C. C. Phillips, F. T. Rainey, H. H. Hall, E. W. Emery, J. H. Lang, A. M. Hutchison, S. A. Chadwell, D. R. Croft, G. S. Beitler, V. O. Cox, J. H. Wyman, W. E. Ferguson, D. T. Ring, E. C. Overbeck, C. W. Dean; L. G. Hess, all of Columbus, Ohio; H. C. Heflinger, Fremont, Ohio; C. F. Bronson, Elyria, Ohio; G. K. Schooler, Findlay, Ohio; W. C. Mead, Mansfield, Ohio; F. S. Williams, Springfield, Ohio; H. M. Jay, Newark, Ohio; H. W. Baker, Cambridge, Ohio; F. W. Phillips, Athens, Ohio; L. D. Myers, Homer, Ohio; J. G. Baxter, Pavonia, Ohio; J. D. Adams, Sugar Grove, Ohio; R. D. Weaver, Athens, Ohio; E. N. Corwin, Athens, Ohio; E. B. Konkler, Wooster, Ohio; F. A. Jones, Mount Vernon, Ohio; H. G. Leight, Mansfield, Ohio; C. R. Adams, Wooster, Ohio; William Blum, Lancaster, Ohio; H. M. Cox, Wooster, Ohio; J. F. King, Cambridge, Ohio; E. W. Bailey, Athens, Ohio; R. Frary, Lancaster, Ohio; H. C. Simmons, Mount Vernon, Ohio; E. P. McKinley, Wooster, Ohio; A. Kirby, Toledo, Ohio; J. L. Brooks, Wooster, Ohio; H. Fisher, Athens, Ohio; F. Hardesty, Cambridge, Ohio; J. Stewart, Wellston, Ohio; I. A. Ludwig, The Northwestern Ohio Natural Gas Co., Toledo, Ohio; P. G. Miller, The Indiana Gas Distribution Corp., Zoinsville, Ind. 11,156.5692 miles.

Oklahoma Natural Gas Co., 624 S. Boston Ave., Tulsa, Okla.

Pres., Joseph Bowes. *V. P.s*, George Frederickson, Frank B. Long, Paul R. Taylor, W. Jennings Young. *Sec.* and *Treas.*, F. W. Peters. *Asst. Sec.* and *Asst. Treas.*, Oakah L. Jones. *Dist. Mgrs.*, George W. Brinkley, Ardmore, Okla.; W. W. Bruce, Chandler, Okla.; P. V. Root, Muskogee, Okla.; Thomas H. Sterling, Oklahoma City, Okla.; W. M. Maher, Okmulgee, Okla.; F. E. Padden, Shawnee, Okla.; J. A. Ray, Enid, Okla.; C. M. Van Slyke, Iola, Kans. *Dist. Supts.*, Jack Gillis, Ardmore, Okla.; W. G. Van Arsdale, Muskogee, Okla.; T. A. Wood, Oklahoma City, Okla.; E. H. Newkirk, Okmulgee, Okla.; Lee Prokop, Shawnee, Okla.; W. A. Hazard, Tulsa, Okla.; C. R. Shiers, Enid, Okla.; C. M. Van Slyke, Iola, Kans. *Ch. Engr.*, Robert W. Ducker. *Supt. Gas Measurement*, Gilbert Estill. *Gen. Supt.*, L. A. Farmer. *Safety Dir.*, R. S. Huffman. *Mgr. Land* and *Lease Dept.*, W. L. Rinaman. *Gen. Sales Mgr.*, J. H. Warden. 3,900 miles.

Oklahoma Power & Water Co., Sand Springs, Okla.

Pres., R. W. McClure. *V. P.*, T. E. Mansfield. *Sec.*, T. S. Matthews. *Treas.*, C. F. Colvin. *Supt.*, H. H. Young. *Engr.*, C. P. Pyeatte. 190.6 miles.

Oko Pipe Line Co., Iola, Kans.

Pres., Mack C. Colt. *V.P.*, R. B. Holland. *Sec.* and *Treas.*, M. P. Colt.

Ottumwa Gas Co., Ottumwa, Iowa

Mgr., George G. Holmes. *Supt.*, C. A. Davis. *Sta. Supt.*, A. E. Shoemaker. 23 miles.

To Serve You Longer . . . with Less Attention

JENKINS PROVIDES MANY EXTRA-QUALITY POINTS IN IRON VALVES . . . see them in the "Photo-Facts" book

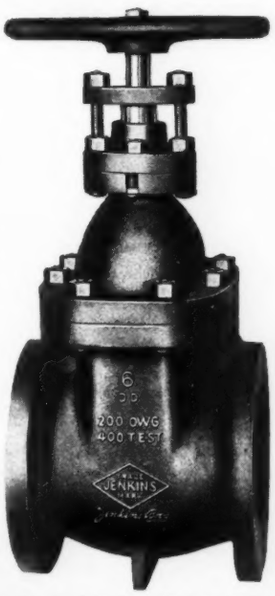


Fig. 873 Jenkins Iron Body Gate Valve with Double Disc Parallel Seat

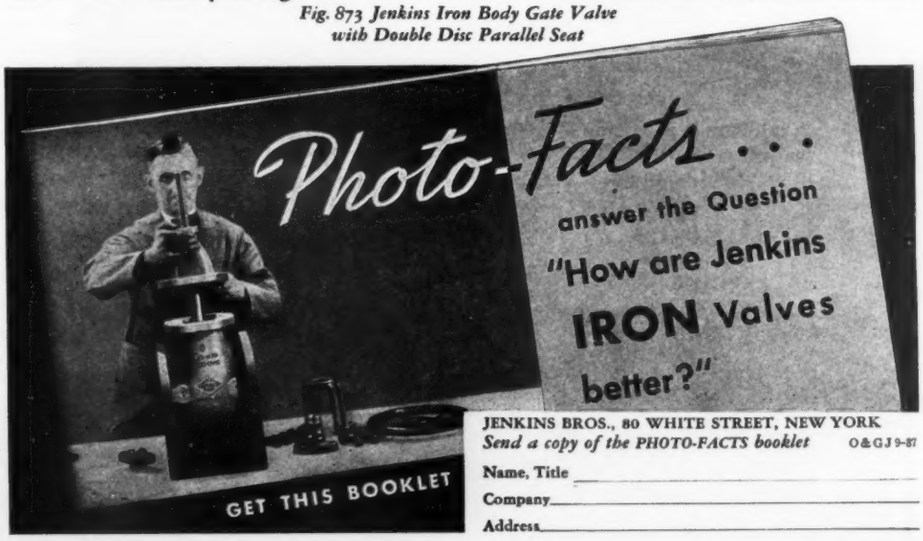
EVERY Jenkins IRON Valve . . . whether it's a gate with a solid wedge or double disc parallel seat, or a globe, angle, check or other type . . . brings you perfection in design and exceptional quality characteristics which mean longer service with less attention.

Two dozen pictures of Jenkins' quality-points are presented in the unique "PHOTO-FACTS" booklet. Get a copy . . . see why so many buyers are standardizing on *"Jenkins"* for IRON as well as bronze valves. It's a money-saving practice. And, today it costs no more, for Jenkins IRON Valves are obtainable at regular good-valve prices.

Send for the booklet, now, and ask your supply house to show you the complete line of Jenkins IRON Valves that includes types, patterns and sizes for your service.

JENKINS BROS., 80 White Street, New York; 510 Main Street, Bridgeport; 524 Atlantic Avenue, Boston; 133 N. Seventh Street, Philadelphia; 822 Washington Boulevard, Chicago; JENKINS BROS., Limited., Montreal, Can.; London, Eng.

JENKINS VALVES
BRONZE—IRON—STEEL



JENKINS BROS., 80 WHITE STREET, NEW YORK
Send a copy of the PHOTO-FACTS booklet O&GJ 9-37

Name, Title _____

Company _____

Address _____

P

Pacific Gas & Electric Co., 245 Market St., San Francisco, Calif.

Pres., J. B. Black. *V. P.s*, P. M. Downing, J. P. Coghlan, A. E. Wishon, A. H. Markwart, W. G. Vincent, R. E. Fisher. *V. P., Sec.* and *Treas.*, D. H. Foote. *Engr. of Distribution*, R. S. Fuller. *Engr. of Prod.*, F. Wills. *Engr. of Constr.*, H. J. Smith.

Natural Gas Division

Div. Mgr., F. F. Doyle. *Supervising Clerk*, O. O. Hannah. *Ch. Gas Dispatcher*, R. T. Peterson. *Measurement Engr.*, L. F. Reetz, San Jose, Calif. *Supt. Gas Trans. Lines*, F. E. Wilson, Hollister, Calif. *Foreman Compr. Sta.*, L. Davis, Kettleman Hills, Calif. *Asst. Foreman Compr. Sta.*, A. M. Toler, Kettleman Hills, Calif. *Head Field Oper.*, William Johnson, Kettleman Hills, Calif. *Line Repair Foremen*, L. M. Glendening, San Martin, Calif.; R. C. Dodge, Paicines, Calif.; H. J. Sonntag, Kettleman Hills, Calif.

Coast Valleys Division

Div. Supt., G. A. Peers, Salinas, Calif. *Asst. Div. Supt. Gas* and *Water*, S. A. Wright, Salinas, Calif. *Foreman Gas Dept.*, E. K. Gwynn, Salinas, Calif.

Coalgate Division

Div. Supt. Gas Dept., J. F. Sauer, Marysville, Calif.

De Sabla Division

Div. Supt., T. B. Copeland, Chico, Cal. *Gas Dist. Foreman*, D. D. Smith, Chico, Calif.

East Bay Division

Div. Supt. Gas Dept., V. E. Britton, Oakland, Calif. *Supt. Gas Distr. Dept.*, W. H. Cohick, Oakland, Calif. *Gen. Foreman Gas Ser.*, W. F. Pape, Oakland, Calif. *Supvr. Foreman*, J. C. Hitchcock, Richmond, Calif. *Supvr. Foreman Gas Dept.*, J. E. Mulgrew, Oakland, Calif. *Supvr. Meters and Complaints*, J. N. Young, Oakland, Calif. *Foreman Meter Repair Shop (Gas)*, W. E. Blakeley, Oakland, Calif.

Humboldt Division

Gen. Foreman Gas and *Steam Prod.*, Chris Knudsen, Eureka, Calif.

North Bay Division

Div. Supt. Gas Dept., A. E. Englebright, San Rafael, Calif. *Gen. Foreman (Gas)*, Carl B. Samuelson, Petaluma, Calif. *Dist. Gas Supt.*, L. N. Pechette, Vallejo, Calif.

Sacramento Division

Div. Supt. Gas Dept., W. A. Bahr, Sacramento, Calif. *Foreman Gas Plant*, George Hooker, Sacramento, Calif. *Foreman Gas Dist. Dept.*, George McKay, Sacramento, Calif.

San Francisco Division

Div. Supt. Gas Dept., Edward T. Floyd. *Supt. Ser. Gas Dept.*, E. G. Campbell. *Supt. Distr. Mains, Gas Dept.*, Frank English. *Supt. Prod., Gas Dept.*, J. Doran.

San Joaquin Division

Supt. of Gas Prod., J. T. Leary, Stockton, Calif. *Supt. Gas Distr.*, T. P. Jenkins, Stockton, Calif.

San Jose Division

Div. Supt. Gas Dept., R. H. Hargreaves, San Jose, Calif. *Dist. Supt. Gas Distr.*, W. H. MacLean, San Jose, Calif. *Asst. Dist. Supts. Gas Distr.*, J. J. Byrnes, San Jose, Calif.; A. M. Riesen, San Jose, Calif. *Dist. Supt. Gas Dept.*, J. J. Breslin, San Mateo, Calif. *Asst. Dist. Supt. Gas Dept.*, K. Chamberlain, San Mateo, Calif. 7,921 miles.

Panhandle Eastern Pipe Line Co. and Subsidiary companies, 101 W. Eleventh St., Kansas City, Mo.

Pres., J. D. Creveling. *V. P.* and *Gen. Mgr.*, Burt R. Bay. *V. P.* and *Counsel*, G. J. Neuner. *Sec.* and *Controller*, Leith V. Watkins. *Treas.*, Louis F. Sperry. *Asst. Sec.* and *Asst. Treas.*, N. F. Paxton. *Supt. of Distribution Dept.*, J. F. Curry. *Supt. of Trans. Dept.*, J. C. Reinbold. *Supt. of Compressors*, G. T. Koch *Supt. of Prod. Dept.*, J. D. Freeman. *Supt. of Land Dept.*, H. W. Pope. *Supt. of Engr. Dept.*, J. S. Stevenson. *Supt. of Meas. Dept.*, Fay C. Walters. *Pur. Agt.*, S. A. Taylor. *Div. Supts.*, James L. Murphy, Liberal, Kans.; John C. Wright, Paola, Kans.; Herman W. Shubring, Liberal, Kans.; Charley O. McCoy, Boonville, Mo.; Richard D. Ricketts, Louisburg, Kans. *Ch. Engrs.*, Francis A. Jackson, Pleasant Hill, Ill.; Oscar A. Milliken, Houstonia, Mo.; Russell W. Plank, Liberal, Kans.; Clarence R. Williams, Liberal, Kans.; Sam J. Dunlap, Louisburg, Kans.; John C. Porter, Haven, Kans.; Arthur A. Deam, Stinnett, Tex.; Earnest R. Thomas, Greensburg, Kans.; Oscar W. Price, Olpe, Kans.; Burney W. Duke, Centralia, Mo. *Prod. Engrs.*, Lex W. Phillips, Stinnett, Tex.; Samuel H. Neithercoat, Hugoton, Kans. *Ch. Chem.*, J. T. Russell.

Panhandle Illinois Pipe Line Co.

Div. Supt., William K. Sanders, Glenarm, Ill. *Ch. Engr.*, Thomas E. Gilliam, Glenarm, Ill. 2,047 miles.

Pecos Valley Gas Co., Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Gen. Mgr.*, J. R. Cole, Santa Fe, N. Mex. *Pur. Agt.*, F. D. Bradley. *Dist. Mgr.*, H. M. Oldham, Carlsbad, N. Mex.

People Gas & Fuel Co., Inc., 901 Slattery Bldg., Shreveport, La., controlled by Southwest Natural Gas Co.

Pres., Charles G. Laskey. *V.P.*, George Belchie. *Sec.*, Alexander Pinney. *Treas.*, Ronald M. Craigmyle. *Asst. Sec.-Treas.*, F. J. Gaumer. *Asst. Sec.*, Fred Moore.

Peoples Light Co., Davenport, Iowa

Pres., R. B. MacDonald. *V. P.s*, H. E. Littig, B. J. Denman. *Sec.*, H. E. Littig. *Treas.*, G. G. Kuhn. *Engr.*, William J. Wuestenfeld. *Supt. of Distribution*, J. Ainsley. *Pur. Agt.*, G. G. Kuhn. *Flow Meter Engr.*, A. F. Baird. 16 miles.

Peoples Natural Gas Co., The, 545 William Penn Way, Pittsburgh, Pa.

Pres., J. French Robinson. *V. P.*, S. C. Preston. *Sec.* S. E. W. Burnside. *Treas.*, S. J. Ratcliffe. *Mgr.*, E. W. Williamson: *Supt.*, F. A. Bernkert. *Supt. of City Plants*, L. E. Ostrye.

Phillips Oil & Gas Co. (T. W.), 205 N. Main St., Butler, Pa.

Pres., T. W. Phillips, Jr. *V. P.*, B. D. Phillips. *Sec.*, C. A. Wilder. *Gen. Supt.*, R. A. Beach. *Supt. Compr. Sta.*, E. J. Beach. *Pur. Agt.*, R. H. McCafferty. *Engr.*, C. A. Kemper.

Pittsburgh & West Virginia Gas Co., 435 Sixth Ave., Pittsburgh, Pa.

Pres., F. R. Phillips. *V. P.s*, F. F. Schauer, Joseph McKinley. *Controller*, C. S. Mitchell. *Sec.*, W. B. Carson. *Treas.*, C. J. Braun, Jr. *Operating Mgr.*, D. P. Hartson. *Gen. Supt. Prod. and Trans.*, H. H. Pigott. *Supt., Prod.* and *Geo.*, J. H. Newlon. *Supt. Comp. Sta.*, J. Bonsall, Union National Bank Bldg., Clarksburg, W. Va. *Land Agt.*, J. M. Shields. 1,373 miles.

Public Service Co. of Oklahoma, Public Service Bldg., Tulsa, Okla.

Pres., Fred W. Insull. *V. P.s*, R. K. Lane, C. N. Robinson, J. A. Whitlow. *Sec.*, R. F. Frank. *Treas.*, E. E. Ehret. *Dist. Mgr.*, M. M. Schene, McAlester, Okla. *Gas Supt.*, C. J. Goodspeed, McAlester, Okla. 34.27 miles.

Public Service Corp. of Texas, 610 Mid-Continent Bldg., Fort Worth, Tex.

Pres., William Horwitz. *V. P.s*, Thomas Cook, S. B. Horwitz. *Sec.*, I. E. Horwitz. *Treas.*, M. A. Berman. *Supt.*, H. J. Boisdorf, Perryton, Tex. 150 miles.

R

Reidsburg Natural Gas Co., Clarion, Pa.

Pres., C. E. Deitz. *Sec.* and *Treas.*, E. E. Deitz.

MULLIGAN
PIPE LINE WELDING

Part of a Mulligan Pipe Line crew welding a 6-inch line in the Gulf Coast area.

In addition to Pipe Line Welding, we offer a complete field welding service including the welding of oil well casing, which practice we helped pioneer in the Mid-Continent.

MULLIGAN WELDING SERVICE CORP.

520 Esperson Bldg.
Phone P-6370, 6378

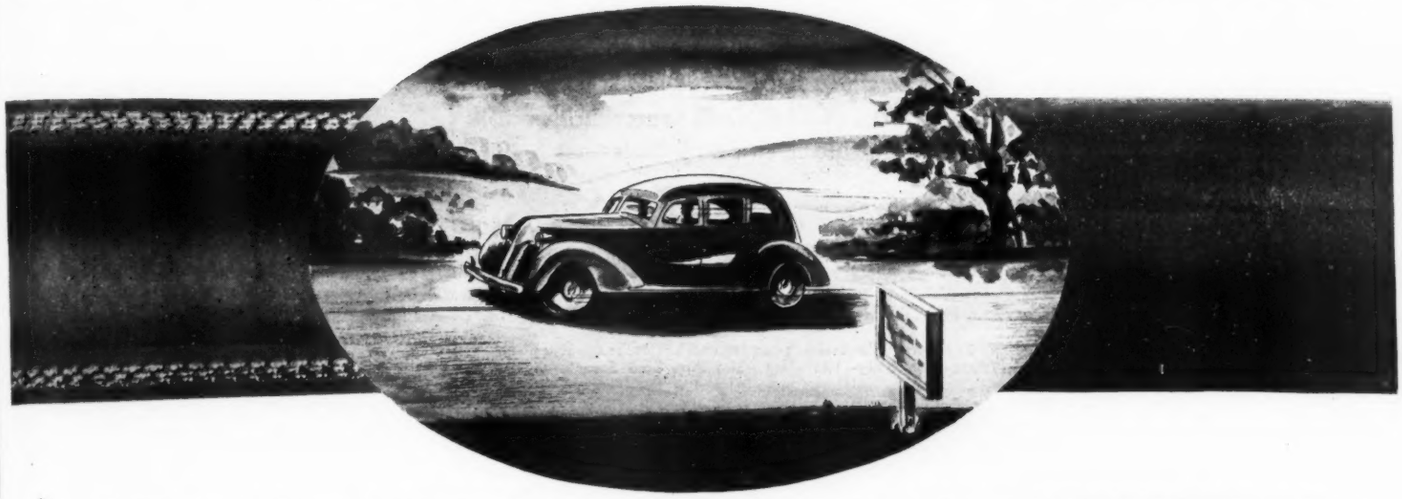
HOUSTON, TEXAS

Warehouse—514 W. 23rd. St.
Phone Val. 2-1740

A typical Mulligan casing welding unit.

COMPARE *the "Old Dirt Road"*

and the "MODERN EXPRESS HIGHWAY"



...then you'll understand the switch to smooth-bore NEOPRENE *Hose*

REPLACEMENT costs run higher on the old dirt road . . . traffic is slower, dirtier. The old dirt road is synonymous with yesterday's cumbersome metal-lined hose in which every flexing causes deterioration as metal fights against rubber. Eventually this rubber is ground fine enough to work into the gasoline stream . . . into your customer's tank and engine.

Speed is the symbol for smooth-bore NEOPRENE hose for pump and wet service tank truck requirements. It's the modern express highway for servicing fuel. It is durable because there is no conflict between the closely bound elements of its construction . . . NEOPRENE smooth-bore hose is setting a new standard for low replacement costs.

This lightweight, flexible, durable hose finds favor with operators because it is so much easier to handle than the older type of hose—tough, resilient NEOPRENE lining replaces the heavy, clumsy metal lining used in ordinary hose.

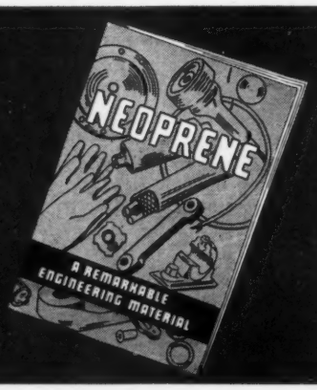
Ask your supplier for Neoprene—lined smooth-bore curb service hose, or write us for a list of manufacturers.

See our Exhibit Booths 1108-1110, Oil World Exposition, Houston, Texas, October 11-16

NEOPRENE

DU PONT

E. I. du Pont de Nemours & Co., Inc.
RUBBER CHEMICALS DIVISION
Wilmington, Delaware



HAVE YOU RECEIVED YOUR COPY of the NEOPRENE Handbook? It's new—write today for it.

Republic Light, Heat & Power Co., Inc., 518 Jackson Bldg., Buffalo, N. Y.

Pres., H. L. Doherty, New York City. *V. P.*, S. B. Severson. *Sec.* and *Treas.*, J. A. Richie. *Div. Supts.*, P. H. Dole, Tonawanda, N. Y.; J. F. Sweeny, Dunkirk, N. Y.; W. B. Kopfer, Batavia, N. Y.; A. H. Merritt, Niagara Falls, N. Y. *Supt. of Plant*, J. J. Cowan, Tonawanda, N. Y. *Distribution Supt.*, Charles Scheiffele, Niagara Falls, N. Y. *Supt. of Prod.*, F. Fair, Buffalo, N. Y. *Distribution Engr.*, G. M. Merrill, Buffalo, N. Y. *Pur. Agt.*, C. D. Lymburner. 1,065 miles.

Revere Natural Gas Co., Jefferson, Pa.

Pres., C. R. Sellers. *V. P.*, J. R. Scott. *Sec.* and *Treas.*, Harry A. Cree.

Ridgway Natural Gas Co., 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, W. H. Locke. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Sec.* and *Asst. Treas.*, M. J. Talley. *Asst. Treas.*, F. P. Ginkel. *Supt. of Distribution*, P. L. Mulkin. *Supt. of Prod.*, J. G. Montgomery. *Pur. Agt.*, M. J. Connor.

Rio Grande Valley Gas Co., Brownsville, Tex.

Pres., B. E. Hepler. *V. P.s*, R. B. Lloyd, Joseph C. Jordan. *Sec.* and *Treas.*, James T. Jackson. *Asst. Sec.* and *Asst. Treas.*, W. H. Meredith. *Auditor*, R. T. McMinn. *Pipe Line Supt.*, C. A. Irwin. *Pur. Agt.*, H. H. McIntire. *Mgrs.*, D. W. Day, San Benito, Calif.; J. K. England, Harlingen, Calif.; Guy Pierce, Raymondville, Calif.; C. D. Bennett, Weslaco, Calif.; J. T. Spettigue, Mercedes, Calif.; Mike Groom, McAllen, Calif.; E. E. Marburger, Mission, Calif.; R. W. Fenwick, Edinburg, Calif. 444 miles.

River Gas Co., The, 545 William Penn Way, Pittsburgh, Pa.

Pres., Howell C. Cooper. *V. P.s*, Loring L. Tonkin, Joseph C. Chisler. *Sec.*, S. E. W. Burnside. *Treas.*, Joseph C. Chisler. *Gen. Supt.*, W. B. Gribble, Clarksburg, W. Va. *Asst. Supts.*, C. C. Reed, Clarksburg, W. Va.; John A. Clark, Clarksburg, W. Va. *Supt.*, R. C. Brown, Marietta, Ohio. 243 miles.

River Valley Gas Co., Paris, Ark.

Pres., J. Gates Williams. *V. P.*, Harry Neelly. *Sec.*, P. C. Thompson. *Asst. Sec.* and *Treas.*, Wyley Elliott. *Supts.*, O. R. Dill, Reid Glover.

Rocky Mountain Gas Co., The, Casper, Wyo.

Pres., John McFadyen. *V. P.*, W. B. Emery. *Sec.* and *Treas.*, J. A. Lee. *Supts.*, H. O. Kapp, Rawlins, Wyo.; John Wilkie, Powell, Wyo. *Agents*, George E. Lytle, Powell, Wyo.; E. P. Murphy, Rawlins, Wyo.; George E. Smith, Cody, Wyo.; J. T. Fuller, Lovell, Wyo.; W. W. Husted, Laramie, Wyo.; A. Anderson, Craig, Colo. 184.08 miles.

Russellton Curtisville Gas Utilities, Butler, Pa.

Pres., Allison L. Heile, Cheswick, Pa. *Sec.*, Elmer Rigger. 5 miles.

S

Sagamore Oil & Gas Co., Independence, Kans., subsidiary of Union Gas System, Inc.

Pres., Paul R. Johnson. *V. P.* and *Gen. Mgr.*, Charles W. Studt. *Treas.*, H. F. Mitchell. *Pur. Agt.*, W. L. Orr.

Santa Maria Gas Co., 201 W. Main St., Santa Maria, Calif.

Pres. and *Gen. Mgr.*, R. E. Easton. *Gen. Supt.* and *Asst. Gen. Mgr.*, A. T. Fesler. *Gen. Auditor, Asst. Sec.* and *Pur. Agt.*, C. W. Hatch. *Asst. Gen. Supt.* and *Gas Engr.*, R. B. Bruce. *Mgr. Gas Utilization* and *Adv.*, I. S. Keyser. *Local Mgrs.*, A. P. Henning, Lompoc, Calif.; Percy G. Hawkins, Pismo Beach, Calif.; C. W. Charles, San Luis Obispo, Calif.; P. M. Graham, Paso Robles, Calif.

Saxonburg Heat & Light Co., Saxonburg, Pa.

Pres., Joseph L. Bachman. *V. P.*, Henry F. Fruth. *Sec.* and *Treas.*, W. H. Knoch. *Supt of Lines*, Henry F. Fruth. *Foreman*, Joseph L. Bachman. *Gen. Mgr.* and *Pur. Agt.*, W. H. Knoch. 38 miles.

Sergeant Gas Co., Williamsport, Pa.

Pres., Eben Russ. *V. P.*, H. C. Bubb. *Sec.*, W. L. Heim. *Treas.*, N. B. Bubb, Jr. *Gen. Supt.*, W. L. Heim, Kane, Pa. *Asst. Supt.*, J. H. Heim.

Smethport Natural Gas Co., 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, W. H. Locke. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Sec.* and *Asst. Treas.*, M. J. Talley. *Asst. Treas.*, F. P. Ginkel. *Supt. of Distribution*, P. L. Mulkin. *Supt. of Prod.*, J. G. Montgomery. *Pur. Agt.*, M. J. Connor.

Southwest Natural Gas Co. formerly Southwest Gas Co. of Oklahoma and Southwest Gas Utilities Corp. of Oklahoma, 901 Slattery Bldg., Shreveport, La.

Pres., Charles G. Laskey. *V. P.*, George Belchic. *Engr.*, M. C. Bubenzer. *Mgr. Okla. Dist.*, C. A. Breitung, Ada, Okla. *Mgr. Tex. Dist.*, H. F. Adlam, Lockhart, Tex.

Southwest Natural Gas Co., Slattery Bldg., Shreveport, La.

Pres., Charles G. Laskey. *V.P.*, George Belchic. *Sec.*, Alex. Pinney. *Treas.*, R. M. Craigmyle. *Okla. Mgr.*, C. A. Breitung, Box 270, Ada, Okla. *Okla. Supt.*, W. O. Smith, Box 270, Ada, Okla. *Tex. Mgr.*, H. F. Adlam, Lockhart, Tex. *Ch. Engr.*, M. C. Bubenzer.

Southwestern Light & Power Co., 600 S. Main St., Tulsa, Okla.

Pres., Fred W. Insull. *V. P.s*, R. K. Lane; S. I. McElhoes, Chickasha, Okla.; Harry W. Pitzer, Lawton, Okla. *Sec.*, A. M. McKinney, Chickasha, Okla. *Treas.*, C. W. McIlhenny. *Mech. Engr.*, William Schumacher, Lawton, Okla. *Gas Supt.*, E. W. Shull, Lawton, Okla. *Gas Supt.*, J. T. Thompson, Chickasha, Okla. 232.96 miles.

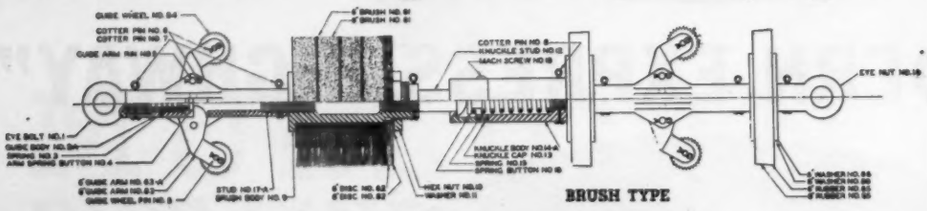
Southern California Gas Co., 810 S. Flower St., Los Angeles, Calif.

Pres., A. B. Macbeth. *V. P.*, William Moeller, Jr. *Gen. Supt. Prod.* and *Trans.*, H. P. George. *Div. Mgrs.*, A. B. Newby, Box T, Taft, Calif.; S. S. Donaldson, Box 303, Newhall, Calif.; J. W. Farmer, Avenal, Kings Co., Cal.; H. C. McAllister, 570 Fourth St., San Bernardino, Calif.; J. F. Murray, 306 S. Catalina Ave., Redondo, Cal. *Div. Engrs.*, M. J. Binckley, Box T, Taft, Calif.; W. K. Dodd, Box 850, Ventura, Calif.; Robert Few, Avenal, Kings Co., Calif. *Div. Supt.*, R. E. Haun, 306 S. Catalina Ave., Redondo, Calif. *Supt. of Trans.*, Grove Lawrence, Box "T," Taft, Calif. *Supt. of Nat. Gas Prod.*, W. C. Cameron, Box T, Taft, Calif. 921.1373 miles.

Southern Counties Gas Co. of California, 810 S. Flower St., Los Angeles, Calif.

Pres., F. S. Wade. *V. P.s*, A. F. Bridge, M. R. Thompson, N. R. McKee. *Sec.*, E. C. Cox. *Treas.*, F. Cham-

UNIVERSAL *Pipe Line Scraper*



BRUSH TYPE

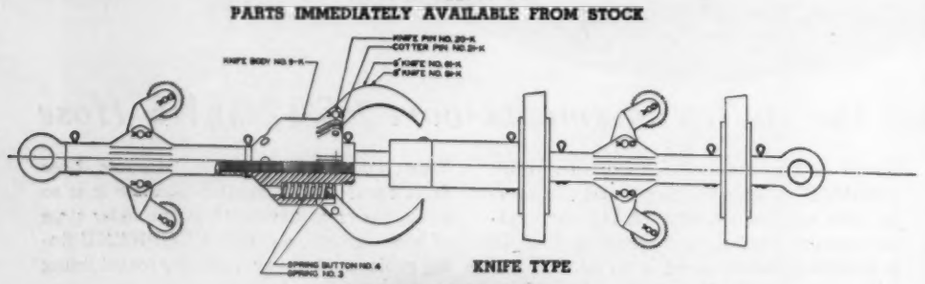
THE ALL-PURPOSE SCRAPER interchangeable from Brush to Knife Type and interchangeable from 6 to 8 inch size.

- NEW DESIGN, HEAVIER KNIVES.
- SPECIAL LONG WEARING COMPOSITION DRIVING DISKS.
- VERY FLEXIBLE THROUGHOUT, WITH LONG WEARING PARTS OF STEEL TO STAND MORE ABUSE AND GIVE UNUSUAL SERVICE.
- ALL WEARING PARTS ARE HEAT TREATED FOR MAXIMUM WEAR.

Buy either 6 or 8 inch size, in either Brush or Knife Type, when desired you can then with interchangeable parts change to other size in either Knife or Brush Types—one body—two sizes. The Pipe Line Scraper to get maximum results at minimum cost.

Prices on Application

PARTS IMMEDIATELY AVAILABLE FROM STOCK



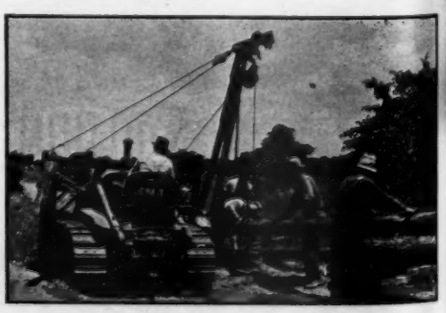
KNIFE TYPE

TULSA TYPE

Tulsa Boiler & Machinery Co.

Twenty-first Street & Union Avenue

TULSA, OKLAHOMA



On Champlin Crescent to Enid, Okla., line

"NEW IDEAL"

Pipe Reconditioning Equipment Insures Speed, Savings and Safety for the

PIPE LINE INDUSTRY

Typical Pipe Yard scene, showing New Ideal Pipe Cleaner at work. Note pile of scale and rust in foreground.

Pipe Line Companies, Gas Companies, Oil Producers, Public Utilities, Pipe Yards and Supply Companies throughout the United States and many Foreign Countries are saving time, money and equipment; eliminating waste and hazard to properties and human life with New Ideal Pipe Cleaning Machines and Pipe Straightening Machines.

New Ideal Pipe Cleaning Machines and Pipe Straighteners insure greater recovery and proper grading of pipe; longer life and greater safety. Faster and more thorough cleaning increases the usefulness of used pipe to operators; increases saleability and profits for pipe dealers.

Pipe Cleaning Machines

This Model New Ideal Pipe Cleaning Machine, equipped with extension stands for handling 40 ft. joints of pipe, has cleaned millions of feet of pipe for Union Gas System, Tidal Pipe Line and others.

New Ideal Pipe Cleaning Machines combine engineering research and manufacturing skill with practical field experience. They are sturdily constructed, rapid, efficient and economical; the most complete machines, the most complete line in the world market.

Low Cost Operation: Several machines have each cleaned in excess of a million feet of Pipe. One pipe line company has cleaned 946,120 feet of pipe (12" and smaller) at a cost of .00043 cent per ft. In all fields, under all conditions, New Ideal machines have given utmost satisfaction.

Made in models and sizes to meet your particular requirements. Many exclusive features.

Pipe Straightening Machines

This New Ideal Pipe Straightener has made unusual record for Cosden Pipe Line Company.

New Ideal Duo-Hydraulic Pipe Straighteners and Bending Machines feature engineering design, super construction, speed, power and flexibility; permit their quick, easy transportation; insure fast, economical operation in oil field, on line job, or in supply yard. Equipped with New Ideal Hi-Speed or Hi-Pressure Triplex Pumps or both; include many features exclusive to New Ideal Machines.

Made in models of varying strength, power, capacity and speed. There is a size and style to meet your most exacting requirements.

Write for Illustrated Catalog.
See 1937 Composite Catalog.

NEW IDEAL EQUIPMENT IS USED THROUGHOUT MID-CONTINENT AND OTHER AMERICAN FIELDS; IN CANADA, COLOMBIA, ROUMANIA, VENEZUELA, SYRIA, IRAN and other countries.

The NEW DEAL SPECIALTY CO.

— INC. —

OKMULGEE, OKLA., U.S.A.

KNOWN AROUND THE WORLD

EXPORT: LUCEY EXPORT CORPORATION

3505 Woolworth Bldg., New York, N. Y. Broad Street House, London, E.C.2, England

pion. *Dist. Mgrs.*, F. G. Merker, 207 W. 2nd St., Santa Ana, Calif.; W. G. Rich, 217 E. Philadelphia St., Whittier, Calif.; H. R. Mead, 196 W. Holt Ave., Pomona, Calif.; J. M. Kennedy, 114 E. Lemon Ave., Monrovia, Calif.; O. R. C. Grow, 296 W. 7th St., San Pedro, Calif.; J. C. Gilbert, 1347 Fifth St., Santa Monica, Calif.; G. W. Smith, 1036 Anacapa St., Santa Barbara, Calif.; Carl Summers, 39 N. California St., Ventura, Calif. *Dist. Supts.*, J. R. Ott, 207 W. 2nd St., Santa Ana, Calif.; R. Blankenship, 217 E. Philadelphia St., Whittier, Calif.; E. R. Ames, 196 W. Holt Ave., Pomona, Calif.; A. E. Madden, 114 E. Lemon Ave., Monrovia, Calif.; W. E. Gentner, 296 W. 7th St., San Pedro, Calif.; F. B. Wright, 1347 Fifth St., Santa Monica, Calif.; R. W. Gregory, 1036 Anacapa St., Santa Barbara, Calif.; B. F. McBurney, 39 N. California St., Ventura, Calif. *San Diego Pipe Line Supt.*, F. E. Jinnett, 225 McKinley Ave., Dana Point, Calif.

Southern Fuel Co., 810 S. Flower St., Los Angeles, Calif.

Pres., A. B. Macbeth. *V. P.s*, F. B. Lewis, F. S. Wade. *Sec.* and *Treas.*, D. M. Trott. *Oper. Mgr.*, H. P. George. *Supt.*, W. M. Pipkin, 845 W. Doran St., Glendale, Calif. *Auditor*, A. C. Johnston. *Field Agt.*, Malcolm R. Miller, Avenal, Calif. *Ch. Dispatcher*, S. A. Walsh, 845 W. Doran St., Glendale, Calif. *Foreman*, M. L. Paull, 845 W. Doran St., Glendale, Calif. 214.19 miles.

Southern Natural Gas Co., Watts Bldg., Birmingham, Ala.

Chm. of Bd., C. T. Chenery, 90 Broad St., New York City. *Pres.*, C. P. Rather. *V. P. and Treas.*, H. G. Calder. *V. P.* and *Sec.*, W. R. Gignilliat. *V. P.* and *Asst. Sec.*, H. D. McHenry, 90 Broad St., New York City. *Compt.*, H. E. Jackson. *Gen. Supt.*, R. H. Ulrich. *Ch. Engr.*, R. H. Burdick. *Mgr. Sales and Service*, J. B. Milmoe. *Mgr. Land and Lease*, John M. Starke, Jr. *Supt. Pipe Lines*, J. P. Neill. *Supt. Compr. Sta.*, J. W. Yeldell. *Supt. Measurement*, C. E. Terrell. *Pur. Agt.*, J. D. Kennedy. 1,289.891 miles.

Southern Ontario Gas Co., Ltd., 518 Jackson Bldg., Buffalo, N. Y.

Pres., Henry L. Doherty, New York City. *V. P.s*, S. B. Severson; Harry D. Hancock, New York City. *Sec.* and *Treas.*, J. A. Richie. *Div. Supt.*, W. J. Marriott, Leamington, Ont. *Distribution Engr.*, George M. Merrill. *Measurement Engr.*, W. H. Hott. *Pur. Agt.*, C. D. Lymburner. 395 miles.

Southern Union Gas Co. of Texas (holding company), Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Pur. Agt.*, F. D. Bradley. *Supt.* and *Engr.*, James C. Reid. *W. Tex. Dist. Mgr.*, H. Beauchamp, Pecos, Tex. *S. Tex. Dist. Mgr.*, H. C. Frizzel, Bellville, Tex.

State Line Gas Co., Fairmont, W. Va.

Pres., A. C. Spurr. *V. P.s*, O. F. Lough, J. K. Buchanan, C. H. Leatham. *Sec.* and *Treas.*, S. E. Miller. *Mgr. Gas Dept.*, G. W. Harr. *Gen. Field Supt.*, G. H. Jackson. *Supt. Fairmont Field*, L. N. Snoderly. *Supt. Compressor Sta.*, K. H. Bane. *Supt. of Distr.*, B. W. Cordray, Point Marion, Pa. *Geologist*, *H. C. Ice. Ch. Clerk*, E. L. Moore. *Gas Sales Engr.*, C. M. Freker. *Supt. Meter Shop*, T. K. Heck. 32.4 miles.

State Fuel Supply Co., 1320 Petroleum Bldg., Oklahoma City, Okla.

Pres., R. B. Crawford. *V. P.s*, F. S. Pratt, M. T. Drisko. *Sec.* and *Treas.*, Ray K. Osborn. *Supt.*, G. R. Carpenter. *Div. Mgr.*, C. L. Boone, Anadarko, Okla. *Mgrs.*, T. R. Smith, Wewoka, Okla.; R. B. Graves, Laverne, Okla.

On Panhandle Eastern line

St. Marys Natural Gas Co., 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, W. H. Locke. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Sec.* and *Asst. Treas.*, M. J. Talley. *Asst. Treas.*, F. P. Kinkel. *Supt. of Distribution*, P. L. Mudkin. *Supt. of Prod.*, J. G. Montgomery. *Supt. of Sta.*, A. C. Burwell. *Pur. Agt.*, M. J. Connor.

Susquehanna Gas Co., Ninth and Hamilton Sts., Allentown, Pa.

Pres., J. S. Wise, Jr. *V. P.*, L. W. Heath. *Sec.* and *Treas.*, C. M. Walter. 81.1 miles.

T

Taylorstown Natural Gas Co., 323 Fourth Ave., Pittsburgh, Pa.

Pres., R. T. Eastell, *V. P.*, J. G. Burford. *Sec.* and *Asst. Treas.*, D. O. Lacock. *Treas.*, R. T. Eastell. *Gen. Supt.*, G. C. Jolly. *Foremen*, W. G. Dickey, W. L. Hixenbaugh.

Texoma Natural Gas Co., 20 N. Wacker Drive., Chicago, Ill.

Pres., W. Alton Jones. *V. P.*, Floyd C. Brown. *Sec.*, S. E. Campbell. *Treas.*, E. H. Johnston. *Prod. Supt.*, J. G. Dickinson, Rule Bldg., Amarillo, Tex. *Drlg. Supt.*, Charles Galloup, Rule Bldg., Amarillo, Tex. *Supt. Compressor Sta.*, R. T. Powers, Box 36, Fritch, Tex. *Div. Supt.*, L. D. Williams, Box 36, Fritch, Tex. *Meter Supt.*, C. L. Mouck, Box 36, Fritch, Tex. *Asst. Supt.*, J. G. Barnhart, Box 36, Fritch, Tex. *Geologist*, C. J. Peterson, Rule Bldg., Amarillo, Tex. 290.18 miles.

Texpata Pipe Line Co., Laredo, Tex.

Pres., O. W. Killam. *V. P.*, Winfield Killam. *Sec.* and *Treas.*, W. T. Killam.

Triangle Co., P.O. Box 100, McKees Rocks, Pa.

Pres., J. B. Montgomery. *Sec.*, John H. Montgomery. *Treas.*, S. H. Morgan. *Engr.*, Albert A. Bock, R. D. No. 1, McKees Rocks, Pa.

Turner Gas & Oil Co., Bruin, Pa.

Gen. Mgr., P. G. Turner. 20 miles.

U

Uintah Gas Co., Vernal, Utah

Pres., A. V. Lewis. *V. P.*, Anna Lewis. *Sec.* and *Treas.*,

HOW LONG IS A PIPE LINE?

From one end to the other; or twice the distance from its centre to either end. Sure, it's a foolish question but here's one that isn't—

HOW GOOD IS YOUR WATER TREATMENT?

We don't have to tell you that a lot depends upon the boiler and engine treatment you are using. But you are paying enough for the "best results" and you are entitled to get them! Your treatment should positively eliminate all traces of scale and corrosion. You should never be bothered with costly shutdowns, tube replacements and repairs. Priming and foaming should be things of the past.

Your treatment should be easy to apply and inexpensive. And it should be safe—not only to the equipment but also the persons applying it.

Regardless of your operating conditions and the nature of the water used we guarantee that—

SAND BANUM

"The Entirely Different Boiler and Engine Treatment"

—can do a better job for you! Not only is it SAFE . . . . SANE . . . . and SURE but it is also the SIMPLEST method available. It comes ready for use in 16 ounce cans and a FEW OUNCES from one to four times per month will provide you with the efficiency and economy you are now expecting to get!

HOUSTON OCTOBER 11-16-1937 SEE OUR EXHIBIT OIL WORLD EXPOSITION

BOOTH 232

Send for booklet "HOW and WHY" today. Then try it on our "Satisfaction or No Money" guarantee.

AMERICAN SAND-BANUM COMPANY, Inc.
9 Rockefeller Plaza New York City

Stocks carried by
WESTERN SAND-BANUM COMPANY
HOUSTON, TEXAS FRESNO, CALIF.
and at other convenient points including leading supply houses

Nothing Ever Happens

Nothing dramatic happens—perfectly conventional routine behavior is maintained at all times where regulators like our illustration are placed on guard. These two 14" low-pressure units are for use in a by-product coke plant. Chaplin-Fulton devices for pressure control have been known and approved over 50 years. Write for catalog, Chaplin-Fulton Manufacturing Co., 28-40 Penn Ave., Pittsburgh, Pa.

in the presence of

CHAPLIN-FULTON REGULATORS

J. R. Douglass. *Gen. Mgr.*, J. R. Douglass. *Well Supt.*, Emil Sundquist. 10 miles.

Union Gas System, Inc., and subsidiaries, Independence, Kans.

Pres., Paul R. Johnson. *V. P.* and *Sec.*, Donald W. Stewart. *Treas.*, Harry F. Mitchell. *Pipe Line Mgr.*, Vernon F. Palmer. *Mgr. Town Plants*, Frederick L. Rupp. *Prod. Mgr.*, Charles W. Studt (Sagamore Oil & Gas Co.). *Gen. Supt. Pipe Line* and *Constr.*, Livingston J. Love. *Sales Mgr. Appliance Dept.*, Jay H. Crawford (Union Appliance Co.), *Dist. Supts.*, C. C. Carson, Longton, Kans.; C. A. Lloyd, Caney, Kans.; Porter Graves, Coffeyville, Kans.; Clyde Myers, Fredonia, Kans.; Harry L. Ferrell, Olatha, Kans.; O. Pickering. *Dist. Foreman*, Zeke White. *Pur. Agt.*, William L. Orr. 1,297 miles.

United Carbon Co., Union Bldg., Charleston, W. Va.

Pres., Oscar Nelson. *V. P.s*, G. A. Williams, T. F. Koblegard, T. S. Reed. *Sec.*, C. H. McHenry. *Treas.*, T. A. Whelan. *Mgr. Gas Oper.*, D. S. Keenan. *Gen. Supts.*, H. W. Engstrom, Monroe, La.; Darius Morris, Clendenin; R. J. Clarkson, Pikeville, Ky. *Engr.*, H. E. Norrick, Monroe, La. *Agt. Land Dept.*, R. V. Sleeth. *Lease Dept.*, C. L. Staats. *Supt.*, E. F. Hagens, Pikeville, Ky.

United Fuel Gas Co., Subsidiary Columbia Gas & Electric Co., Quarrier and Dunbar Sts., Charleston, W. Va.

Pres., H. A. Wallace. *Supt. of Prod. and Trans.*, D. A. Ketchum. *Supt. of Dist.*, J. W. Reeser. 1,196 miles.

United Gas Public Service Co. and subsidiaries, Rusk Bldg., Houston, Tex.

Pres., N. C. McGowen, Shreveport, La. *V. P.*, R. H. Hargrove. *V. P.* and *Comptroller*, S. L. Davis. *Sec.*, J. H. Miracle. *Treas.*, A. L. McClellan. *Gen. Auditor*, R. E. Hull. *Assts. to Pres.*, J. C. Flanagan, A. H. Warren. *Pur. Agt.*, R. A. Reeder. *Gen. Supt. Land, Geo.* and *Map Dept.*, J. S. Ivy. *Ch. Engr.*, A. D. Greene. *Supt. Ind. Sales*, H. E. Randall. *Gen. Supt. Prod.*, B. M. Nowery. *Ch. Chem.* and *Supt. Gaso. Plant Oper.*, W. F. Fulton. *Gen. Supt. Pipe Line Dept.*, M. A. Abernathy. *Asst. Supts., Pipe Line Dept.*, E. R. Cunningham, Ed Parkes, A. L. Bradford. *Supt. of Meas. Pipe Line Dept.*, Ray Rountree. *Ch. Dispatcher Pipe Line Dept.*, E. M. Smith. *Dist. Mgrs.*, H. F. Carr, Baton Rouge, La.; W. J. Quigles, Monroe, La.; F. E. Lacaze, Shreveport, La.; J. E. Bahan, Dallas, Tex.; W. H. Kearney; E. F. Humes, San Antonio, Tex.; J. P. Rogers, Jackson, Miss.; J. P. Rogers, Iowa, La.; Robert Wetzel, Wichita Falls, Tex. 5,243 miles.

United Pipe Line Co., Houston, Tex.

Operating Office, Shreveport, La. *Pres.*, N. C. McGowen. *Oper. Mgr.*, W. F. Hartwig, Shreveport, La. *Constr. Engr.*, P. F. Eflug.

United Natural Gas Co., 308 Seneca St., Oil City, Pa.

Pres., George E. Welker. *V. P.*, W. H. Locke. *Sec.* and *Treas.*, H. S. Rose. *Asst. Sec.*, G. H. W. Sherman. *Asst. Treas.*, M. J. Talley. *Supt. of Distribution*, P. L. Mulkin. *Supt. of Prod.*, J. G. Montgomery. *Supt of Sta.*, A. C. Burwell. *Pur. Agt.*, M. J. Connor.

Upham Gas Co., The, Mount Vernon, Ohio

Pres., James A. Upham. *Sec.*, C. F. Bauman. *Gen. Supt.*, C. D. Jones.

W

Wagoner Gas Co., Little Rock, Ark.

Trustee, W. D. Dickinson. *Mgr.*, J. R. Johnston, Wagoner, Okla. *Supt* and *Engr.*, *J. J. Cobb*, Wagoner, Okla. 27 miles.

Waynesburg Home Gas Co., Inc., 94 E. High St., Waynesburg, Pa.

Pres., J. T. Inghram. *V. P.*, J. N. Penn. *Sec.*, L. M. Weddell. *Treas.*, C. E. Dittman. *Supt.*, L. F. Dille. *Foreman Comp. Sta.*, C. B. Boyles.

West Texas Gas Co., Lubbock, Tex.

Pres., A. R. Jones, Kansas City, Mo. *V. P.s*, P. C. Spencer, New York City; E. A. Sickels, Tulsa, Okla.; M. D. Snyder, Amarillo, Tex. *Sec.* and *Treas.*, George Baird, New York City. *V. P.* and *Gen. Mgr.*, R. F. Hinchey. *Gen. Supt. of Pipe Lines*, E. C. Wagner, Box 637, Amarillo, Tex. *Asst. Supt. of Pipe Lines*, R. M. Curry. *Main Line Supt.*, T. J. Sutherland. *Pur. Agt.*, E. D. Parker. *Supt. Gaso. Plant*, John S. LeGate, R. 3, Box 445, Amarillo, Tex. *Compr. Sta. Supt.*, E. B. Mitchell, Plainview, Tex. *Supt. Gas. Measurements*, T. S. Whitis. 831 miles.

Wheeler Gas Co., Wheeler, Tex.

Owner and *Mgr.*, H. M. Wiley. *Asst. Mgr.*, Max Wiley. 45 miles.

Willmut Gas & Oil Co., Hattiesburg, Miss.

Pres., F. M. Tatum. *V. P.*, *W.* O. Tatum. *Sec.* and *Treas.*, W. S. Tatum. *Supt.* and *Oper. Engr.*, F. M. Flatau. *Asst. to Supt.*, W. F. Easley. *Foreman*, W. T. Boozer. *Main Line Supt.*, W. McLain, Magee, Miss. *Field Man*, J. W. Harrington, Route 4, Jackson, Miss.

Wink Gas Co., Dallas, Tex.

Pres., Walter Reid. *V.P.s*, C. H. Zachry; F. W. Smith. *Gen. Mgr.*, H. Beauchamp, Pecos, Tex. *Sec.*, H. C. McConkey. *Treas.*, C. H. Zachry. *Pur. Agt.*, F. A. Bradley.

Wood-Moore Corp., Box 175, Port Lavaca, Tex.

Pres., A. F. Wood. *V. P.*, Dale W. Moore. *Sec.* and *Treas.*, W. H. Payne, Jr. *Plant Supt.*, Roy W. Machen.

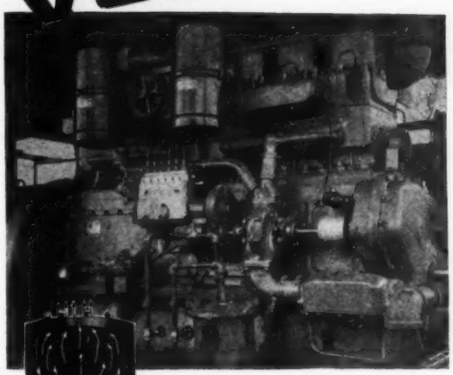
Woodson Pipe Line Co., Iola, Kans.

Pres., M. P. Colt. *V.P.*, R. B. Holland. *Treas.*, Mack C. Colt.

—Photo courtesy The Barret Co.

Close-up of finished line as part of Panhandle Eastern Pipe Line Co.'s 1937 looping program

WHERE THERE'S DUST there's VORTOX



The Vortox TRIPLE ACTION Air Cleaning principle* sets the standard for dust removal . . . that's why you find Vortox Cleaners favored wherever clean air is essential to operating efficiency. Fine, coarse, light or heavy dust particles—Vortox gets them ALL!

*Vortox Triple Action Air Cleaning.
1st: Heavy particles are thrown out by centrifugal force of whirling air column.
2nd: Fine particles are completely removed by an oil scrubbing action.
3rd: Air is given a final filtering through an oil-washed wire maze that sends it into engine dry and 99+ per cent clean.

Remember that Vortox Cleaners maintain their high efficiency day in and day out. There is no filter to become dust clogged and impair efficiency. A change of oil at regular intervals is the only maintenance required!

VORTOX MANUFACTURING CO.
CLAREMONT, CALIFORNIA

VORTOX
OIL TYPE SELF-WASHING
AIR CLEANER

METALLURGICALLY CONTROLLED

ELECTRIC STEEL SUCKER RODS

Our three-ton Electromelt Furnace pouring a special heat of Sucker Rod metal.

The Rolling Mill where the Electric Steel Billets are rolled into rods — 19 reductions are used in the 3/4" rod.

The plant where the rods are straightened upset—threaded, heat treated, inspected and painted ready for shipment.

A "Custom Made" Rod to Meet Every Requirement

We are able to produce "*Custom Made*" rods because we Metallurgically Control every step in the manufacture—from the white-hot metal to the carefully made, and rigidly inspected, finished Sucker Rod. This control assures you a standard consistency in whichever type rod you select—as well as a longer life—because you can select the correct rod to resist the conditions in your field.

Texasteel's Petroleum Engineering Staff is always at your service to help you with your "oil lifting" problems—call upon them. Texasteel backs them up with 30 years of experience in the manufacture of steel and 18 years experience manufacturing oil field pumping equipment.

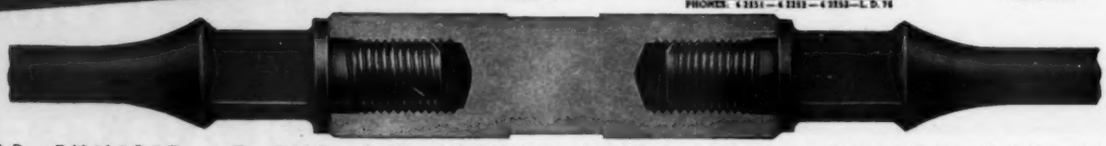
TEXAS STEEL COMPANY

Manufacturers

WAREHOUSE KILGORE PHONE 724

GENERAL OFFICES AND PLANT FORT WORTH, TEXAS PHONES 4-3351 — 4-3352 — 4-3353 — L. D. 76

WAREHOUSE HOUSTON PRESTON 3250



VISIT OUR EXHIBIT AT THE OIL WORLD EXPOSITION—HOUSTON OCT. 11-16

FIELD OPERATIONS

Summarizing the Week's Developments

A saturated sand 2,000 feet below the regular pay in the Schuler field in Union County, Arkansas, was cored in a test in section 17-18-17. It will be tested this week. The Lisbon field in Lincoln and Claiborne parishes, Louisiana, was extended and there are now 100 oil wells in the field. Early estimates on the ultimate recovery of Lisbon will have to be revised upward. It already occupies portions of 10 sections of land.

ROCKY MOUNTAIN AREA

A well making 1,666 bbls. a day from the Minnelusa formation in the Lance Creek field in Wyoming was the feature of the Rocky Mountain week's results.

TEXAS

The northern tier of West Texas producing counties, Gaines, Yoakum, Hockley and Cochran will be given sorely needed pipe line outlets if present plans of three pipe line companies are brought to fruition. Barnsdall Oil Co. sold producing leases containing 74 oil wells in the East Texas field to the General American Oil Co. which will give the buyer's associated pipe line company nearly 700 wells to draw upon. Deep wildcatting in Eastern Texas becomes more discouraging and only 14 such tests are now active. In Southwest Texas a Duval County wildcat is showing oil and pools in Duval and Nueces counties were extended and new producing sands found in established fields. The Benavides, or North Sweden, field was given a mile north and west extension and 10 oil wells were completed in the field in the past week. New sand discoveries were made in the McFaddin, and Keeran fields in Victoria County, and in the Heyser field in Calhoun County, all in the Coastal area, the Heyser new-sand discovery starting at 29 bbls. per hour. On the Louisiana side of the Gulf Coast field Continental Oil Co. test in Evangeline Parish is attracting much attention. A section at 8,970-9,030 feet is to be tested. It is the deepest hole in that part of the Louisiana Coastal area.

PENNSYLVANIA

The Bradford field's big well in northern Pennsylvania which started at 1,200 bbls. a day earlier in the month was deepened and its production increased. It made 120 bbls. an hour in a two-hour test after having been shut in.

KANSAS

A wildcat that extended the Trapp pool one mile west was completed in section 35-15-14w, Russell County, Kansas. An outpost that may be the connecting link between the Bloomer pool of Barton and Ellsworth counties and the Stumps pool of Rice County was completed in section 5-18-10w, Rice County. Eight wells were completed in the Bemis pool, including a 3,338 bbl. pumper. A 5,356-bbl. flowing well was completed in section 5-21-7w, Rice County.

OKLAHOMA

Wilcox sand production was uncovered in new areas in section 25-18-9, Creek County, Oklahoma, and section 15-6-6, Seminole County. The Cement field in Caddo County was extended a quarter mile northwest in section 35-6-10w, and a 75,000,000-foot gasser was completed in the area. A slight extension to the southeast was registered in the Billings pool, Noble County, in section 28-23-2w.

NEW MEXICO

A third producer was completed in the new Alexander area in section 5-21-37, Lea County. A Monument extensioner was completed in section 18-19-27. The week's completions included three gas wells.

Completions in All Fields

(Week Ending September 11, 1937)

	Oil	Gas	Dry	Total	1937 total comp. to date	1936 total comp. to date
N. Y., Pa., W. Va.	70	21	12	103	3,001	2,405
Ohio	3	12	10	25	821	506
Indiana	4	1	1	6	70	133
Kentucky	6	6	9	21	408	188
Illinois	13	0	5	18	112	30
Michigan	11	0	3	14	549	498
Kansas	40	0	14	54	1,788	1,129
Oklahoma	31	2	9	42	1,933	1,833
Texas:						
North Central Texas	37	1	23	61	1,997	1,846
West Texas	42	0	3	45	1,884	1,035
Texas Panhandle	10	4	0	14	523	408
East Texas	54	0	0	54	1,609	1,868
East Central Texas	16	0	4	20	493	222
East Texas Border	8	1	2	11	262	66
Gulf Coast Texas	27	0	4	31	1,073	846
Southwest Texas	48	2	16	66	2,300	1,977
Total Texas	242	8	52	302	10,141	8,268
North Louisiana	14	0	1	15	450	469
Gulf Coast Louisiana	7	0	1	8	321	357
Total Louisiana	21	0	2	23	771	826
Arkansas	2	0	1	3	108	66
Montana	2	0	2	4	150	159
Wyoming	5	0	1	6	75	82
Colorado	0	0	0	0	11	19
New Mexico	13	3	2	18	524	395
Utah	0	0	0	0	2	5
California	33	0	5	38	1,068	790
Total United States	496	53	128	677	21,532	17,332
Total previous week	510	65	140	715		
Difference	14	12	12	38		

Outstanding Fields—Highlights

(Week Ending September 11, 1937)

FIELD—	Rigs up	Wells drlg.	Weekly oil completions	Initial prod.	Total No. oil wells	Daily av. prod.
TEXAS						
Amelia	1	14	3	1,846	87	4,307
Hastings	8	17	11	5,022	293	29,415
McCampbell	4	14	2	350	45	3,610
Saxet	4	25	8	975	535	42,300
Benavides	3	12	10	1,495	51	5,115
East Texas	62	97	54	2,574	23,518	477,750
Talco	3	40	10	2,948	459	30,500
Ector County	23	98	11	13,722	602	32,100
Winkler County	16	54	11	11,934	1,401	47,800
OKLAHOMA						
Oklahoma City	0	6	1	650	1,134	148,775
Fitts	5	33	5	1,342	865	82,900
Billings	2	7	1	518	45	7,275
KANSAS						
Ellis County	10	51	12	8,549	190	7,760
Reno County	4	15	.....	.....	474	18,740
Russell County	12	62	7	6,506	839	36,370
Rice County	7	49	5	4,460	968	38,995
NEW MEXICO						
Lea County	24	114	8	946	1,446	106,620
LA-ARK-TEX						
Rodessa, Ark.	2	17	1	390	10	4,487
Rodessa, La., Ark.	3	14	1	150	407	48,888
Rodessa, Tex.	2	20	4	1,146	343	35,890
Lisbon, La.	5	31	4	5,812	100	.....
Jennings, La.	2	12	1	840	66	11,387
MICHIGAN						
Buckeye	14	71	8	5,907	214	21,087

Southwest Texas District

By GEORGE WEBER

BENAVIDES, DUVAL COUNTY, LEADS IN WEEK'S NEW FINDS

HOUSTON, Sept. 13.—The show of oil in a Duval County wildcat, the extension of Duval and Nueces County fields, and discovery of possible new producing sands in proven areas, comprised the principal developments in Southwest Texas during the past week. The Fault Line Zone also came in for important expansion, with two wildcats completed for small producers, and numerous field tests showing for completion.

As usual, in the past several weeks, the Benavides, or North Sweden, field of Duval County led in the week's important discoveries. Since its discovery, the field has been consistently extended in all directions, and at present much proven undrilled acreage has been opened, pointing to continued activity for months to come.

The most important completion of the week in Benavides was the V. L. Blanchard No. 1 Puig. The semiwildcat test is located a mile north and west of production in the field, and has been completed in the lower or 5,400 foot sand. Casing was perforated at 539½-98 feet and the well gauged 25 bbls. in 4 hours on a 5/32-inch choke. The crude tests 46 gravity. The 5,400-foot Pettus sand has now been proven over a considerable area on the western side of the field.

Another outpost test, Gravis & DeLaney's No. 12 Valleo is showing for production to extend the field limits to the north and east. The test is located in Lot 24 of the San Andres Grant. Bottomed at 4,801 feet, casing was set at 4,794 feet and the well was being washed with oil at latest reports.

To the southeast, the indicated extension to be made by the Woodley Petroleum Co. No. 1 Parr is expected to be completed during the week. Operators are installing pumping equipment. In the regular field sand at 4,795-4,810 feet, No. 1 Parr flowed 96 bbls. per day several days ago, before going dead.

In the field proper, activity is at its height, with 15 rigs active. Ten new oil wells were brought in during the week, with initial production of 1,500 bbls. per day. Fourteen operators are active in drilling the field. New completions ranged in initial production from 116 bbls. to 250 bbls. The large number of operators, and the comparatively short drilling time in reaching and completing in the 4,700 foot sand presage a rapid development of the field. The area already has a pipe line outlet, and two more lines are being laid which will give it direct outlet to Corpus Christi and deep water transportation.

Lower Coastal Fields

Developments in the Lower Coastal area picked up somewhat, but no new discoveries of importance have been made for several weeks. The Luby field of Nueces County has a probable 1,400-foot northwest extension in the Seaboard Oil Corp. No. 2 Luby, in Block 4, Share 2. On a drill stem test at 5,043-60 feet, 560 feet of oil was recovered in 10 minutes with a working pressure of 162 lbs. Quarter-inch chokes were used both top and bottom. To the southeast, same operator's No. 1 Schaffer is attempting to complete in a new sand at 7,290-7,310 feet. It is a north offset to the field discovery, No. 1 Luby.

Drilling activity in the Saxet field continues high, with considerable development of twin wells in the several sand horizons which have been opened. One test, Southern Minerals Corp. No. 2 Bliss was blowing wild. The operators were attempting to set surface casing at 1,114 feet when the well blew out. It is being allowed to blow without choking to prevent cratering, and operators will kill an offset test, perforate at the sand and pump in water in an effort to kill it, if the wild well does not bridge sooner.

Gruy Ranch Tests

The Gruy Ranch of Duval County, in the vicinity of the Kohler field, is getting considerable attention. Four tests are drilling, two of them within a mile of production. Of the wildcats, one, the Speed Oil Co. No. 1 Gruy Estate, 2 miles northeast of Kohler on the Solo prospect, has an indication of possible production. The test is running high with relation to other wildcats that have been drilled in the area. Due to that situation, an unexpected sand was drilled at 2,434-50 feet which showed oil and gas on the pits. Although it was not cored, it is believed that the body represents a new sand in the Lower Hockley. Operators have carried the hole to a total depth of 2,850 feet and will run a Schlumberger survey, and also will take sidewall cores at the 2,434-50-foot horizon. Results of this interesting test may swell the total of Duval County fields, and bring much additional drilling to the county.

Twelve rotaries are on wildcat locations in Duval County, not all of them active, however. A test in the northwest corner of the county has shown indications of possible production, but no information is being given out on it. The test, Baltimore Drilling Co. No. 1 Afflerbach set casing on sands at 1,101-1,117 feet and after swabbing dry has not been reported on.

A wildcat between the Seven Sisters and Labbe fields was completed during the week for a good initial production, and a possible extension on one or the other field. The Sun Oil Co. No. 2 Rodriguez made 96 bbls. per day in sand at 2,800-18½ feet, the Loma Novia sand which produces in the two fields. It is located in Section 222.

Flour Bluff

The southwest edge of the Flour Bluff field of Nueces County is apparently defined, as a second test was abandoned in that area during the week. Humble Oil & Refining Co. and others, No. 3-A Ritter, in Lot 23, Blk. 55 was abandoned at a total depth of 6,689 feet.

In San Patricio County, the Plymouth, Taft and Midway fields are being currently developed. A wildcat located about 3 miles southwest of the McCampbell field in Aransas and San Patricio counties, is still the object of much conjecture on the part of Coastal operators. No information is being officially released on the progress of the test, but it is known that casing was set at 7,117 feet recently, after the test had perforated a higher string set at 6,606 feet some weeks ago. The wildcat, Danray Oil Co. No. 1 Davis is in an area which has interested operators for several months, and although several tests have been sunk in the vicinity, none have been successful.

Rio Grande Valley

In the Lower Rio Grande Valley sector, two fields are receiving considerable attention. The Ricaby field of Starr County has a number of active tests, one of which has cored a deeper sand that may enhance the importance of the pool. The Dean Bros. No. 1 Valadez found the sand at 1,863-72 feet and casing was set at 1,872 feet. Perforations have been shot at the sand level, and production tests are being made. Ricaby has experienced several set-backs recently by failures to extend the production limits.

To the east in Hidalgo County, three rotaries are drilling in the LaBlanca field, where deep production of high gravity crude and distillate has been opened. Further tests scheduled for early drilling may make LaBlanca one of the most active fields in the lower district.

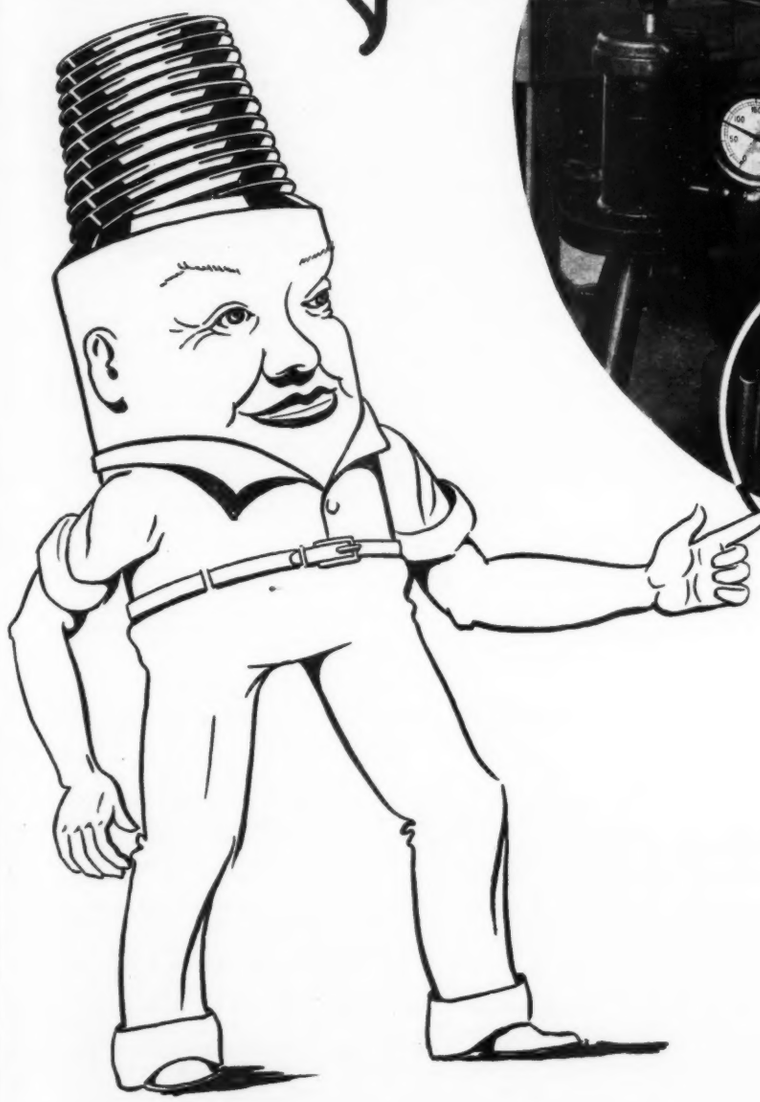
The Fault Line Zone came into the spotlight, with two wildcat completions. In Bastrop County the R. Olson No. 1 Murchison 1½ miles southeast of Cedar Creek is being completed for an estimated initial production between 50 and 100 bbls. per day. It is bottomed in saturated chalk at 1,928 feet.

To the south and west, Bexar County gained another small wildcat producer in the Edna May Oil Co. No. 1 Cassin, which came in at 1,372 feet making 20 bbls. per day. Branyon and Darst Creek are sharing most of the other proven field activity at the present time.

AT THE LAUNCHING OF THE TANKER "FLORIDA"

W. S. S. Rodgers, president of the Texas Co.; Leo Edwards, Miami, Fla.; E. M. Crone, secretary, Texas Co.; Mrs. Mark Byron III, Miami; Mark Byron of Loomis & Hall, Miami; Mrs. Fred P. Cone, wife of Florida's governor, sponsor; T. Rieber, chairman of Texas Co., and Mrs. Leo Edwards.

NO GALLING ALLOWED!



with

HUMBLE THREDKOTE

(Reg. U. S. Pat. Off.)

HUMBLE

Three of the largest tool joint manufacturers in the South use Humble Thredkote No. 1 for bucking on tool joints in their plants.

Galled threads when bucking tool joints on drill pipe would quickly offset all the scientific care given the manufacture of those joints. But no galling is allowed with Humble Thredkote on the job. Humble Thredkote No. 1, which is used for this service, lubricates the threads and cools the joint while it is being bucked on. The zinc filler produces a thin zinc plating which prevents metal to metal contact and seals the joint.

HUMBLE OIL & REFINING COMPANY
HOUSTON, TEXAS

Eastern Field Report

By STAFF CORRESPONDENT

ANOTHER ORISKANY TEST IS STARTED IN BEAVER COUNTY

PITTSBURGH, Pa., Sept. 13.—Another Oriskany test is starting in Southwest Pennsylvania where T. W. Phillips Gas & Oil Co. is building rig on the James Smith farm in South Beaver Township, Beaver County. It is on an 11-acre tract about 2,500 feet south of Galey and others Oriskany gas well on the Charlotte Calvin (Graham) farm. It will be the fourth test in that county, two of which were gas wells and one a dry hole.

SOUTHEAST OHIO

In Columbiana County, Natural Gas Co. of West Virginia is running casing on the J. C. Workman farm, half a mile west of the Margaret Jenkins Oriskany gas well in section 28, Madison Township. It is showing for a fair gas well in the Oriskany, the top of which was reached at 4,436 feet, and it will be drilled in as soon as cemented. This company is continuing to deepen the test on the D. Deseilem farm which may go to the Medina since the Oriskany proved dry.

In Athens County, Gross & Frebault Co. completed No. 2 C. O. Lowery near Fisher in section 31, Athens Township, in the Berea sand at a depth of 1,212 feet. It produced 2 bbls. the first day after shot.

In Coshocton County, Kundtz-Hulse, Inc., and others completed the best producer in Ohio for the week with No. 5 on the R. L. McKee farm in Clinton sand at 3,156 feet. There is 1,500 feet of fluid in the hole and it will probably make 35 or 40 bbls. a day initially. It is located in the NE quarter of section 17, Perry Township.

In Licking County, Pure Oil Co. completed No. 8 H. E. Loughman farm, SW quarter of section 1, Hopewell Township, in Clinton sand at 3,022 feet. It is showing for a small pumper and will be shot.

In Monroe County, the Sutton Brothers No. 17 on the J. H. Rosenlieb farm in section 9, Perry Township, was dry in the Injun sand at 1,475 feet, and will be used for a pressure well.

In Noble County, section 6, Jackson Township, Charleston Syndicate completed a test on the Loen B. Kappel farm in the Berea grit at 1,700 feet. It is a gas well gauging 100,000 feet a day with a showing of water and no oil.

In Perry County, Preston Oil Co. completed No. 1,653 on the Sunday Creek Coal Co. lease, section 35, Coal Township, in Berea sand at 1,160 feet. It is a gas well good for 1,000,000 feet a day. In Reading Township, section 16, Hopewell Fuel & Gas Co. completed No. 2 John Hullman in Clinton sand at 2,990 feet. It gauges 200,000 feet of gas a day.

In Washington County, J. O. Herian and others test on the W. M. Hopple farm in section 28, Independence Township, is a light gasser in Squaw sand at 1,697 feet. In section 16, Ludlow Township, Homer Newhart and others drilled No. 5 C. W. Payne farm through the Berea grit to 1,937 feet and it was dry.

In Lorain County, the Wittmer Co. Henry W. Ingersoll No. 2 Lot 96, Grafton Township, which was a fair gas well in the Linton sand at 2,664 feet, is now making about 1 bbl. of oil a day.

SOUTHWEST PENNSYLVANIA

In Washington County, Southwest Pennsylvania, F. K. Fawcett and others deepened No. 2 Tucker heirs in Amwell Township to the Fifth sand and have a fair producer. Fifth sand was topped at 2,933 feet with oil at 2,943-68 feet. It made 40 bbls. in 14 hours.

In Allegheny County, O. Miller completed a test on the Harry McAdams farm in Hampton Township as a gas well. In McCandless Township, M. Koenig completed a test on the Koenig farm also as a gas well.

In Greene County, North East Gas Co. completed a test on the John McNocholas farm on Knob Run in Springhill Township in the Big Injun sand at 2,373 feet. It is a gas well good for 300,000 feet a day. In Franklin Township, Greensboro Gas Co. test on the Calvin Ulery farm to 3,052 feet was dry and plugged. Elizabeth sand was at 2,950-68 feet.

In Washington County, the second test of I. C. Bloom and others on the Clyde Hinerman farm in South Franklin Township, was drilled through the Fifth sand to 3,334 feet and it was dry.

In Greene County, the Carnegie Natural Gas Co. is nearing the Nineveh Thirty-foot sand in the J. H. Orndoff No. 2 in Center district with the tools at 3,100 feet. This company has a rig up for No. 3 J. W. Milliken. The Manufacturers Light & Heat Co. is underreaming at 2,200 feet on the W. L. Fordyce farm. The Natural Gas Co. of West Virginia is down 2,500 feet in No. 4 Braddock & Cook.

In Aleppo Township, Greene County, Union Gasoline & Oil Corp. is deepening No. 3 T. M. Gallentine and has a rig standing for No. 5. In Springhill Township, Nelson M. Richard Co. is down 1,650 feet in No. 1 Rossell Sammons. In Freeport Boro, Null & Milliken are drilling at 2,654 feet deepening No. 3 W. P. Hoskinson.

In Gilmore Township, Greene County, H. D. Freeland & Co. are drilling at 700 feet in No. 1 R. B. Coen. Duquesne Gas Co. has reached 2,930 feet in No. 1 T. M. Hennen. In Green Township, Annie L. Garard has a rig up for No. 4 J. E. Minor. In Richhill Township, Natural Gas Co. of West Virginia is drilling at 3,082 feet in the O. M. Grinnage test. Fourth sand was at 3,066 feet, with 53,000 feet of gas at 3,069 feet. O. I. Dille is down 735 feet in No. 1 J. M. Phillips.

In Franklin Township, the Waynesburg Home Gas Co. is drilling at 3,565 feet in No. 1 Marguerite Grover. In Dunkard Township, the Convex Glass Co. is cementing a bad hole at 1,099 feet on the Jerome VanVoorhis farm. In Washington Township, Carnegie Natural Gas Co. is drilling No. 1 Sadie A. Connor at 1,830 feet and has a hole full of water from the Salt sand at 1,690 feet.

Washington County

In Amwell Township, the Carnegie Natural Gas Co. made a location on the F. M. Closser farm and one on the P. W. Reynolds farm, and is moving in a rig for No. 4 N. B. Redd. Union Gasoline & Oil Corp. is down 2,650 feet in No. 7 A. O. VanKirk, and 140 feet in No. 8. The Carnegie Natural Gas Co. is down 2,735 feet in No. 3 R. M. Carrons.

In South Franklin Township, Dunn Mar Oil & Gas Co. is building rig for No. 4 J. T. Baldwin. The South Penn Oil Co. has spudded in and started drilling the Piedmont Coal Co. second test.

In Peters Township, Carnegie Natural Gas Co. is down 2,294 feet in the W. J. McMurray test, with Gantz sand at 2,257 feet and 29,000 feet of gas at 2,291 feet. In South Strabane Township, Manufacturers Light & Heat Co. is drilling at 2,120 feet on the R. O. McKahan farm. In North Strabane Township, McClelland Brothers are down 2,329 feet on their own fee with the Gantz sand at 2,305 feet and a show of gas at 2,327 feet.

In Nottingham Township, Robinson Brothers are drilling at 1,580 feet on the Frank Anthoy farm. Victor D. Behm and others shut down at 490 feet on the J. D. Amos farm.

Deep Tests

In Westmoreland County, the test of the Potter Development Co., William E. Snee and others, on the Indiana Savings & Trust Co. lease in Fairfield Township, is drilling at 7,687 feet. It is making about 3 drums of water a day and the gas has increased to 650,000 feet a day. These operators are drilling at 1,000 feet on the Summit Hotel lease on Chestnut Ridge in South Union Township, Fayette County.

In Allegheny County, the test of South Penn Oil Co. and others on the Christian Z. Schove farm in Hampton Township is drilling at 5,525 feet. The top of the Brown shales was reached at 5,416 feet. In Lawrence County, Shenango Township, the test of the Carnegie Natural Gas Co. on the W. A. Currie farm is drilling at 4,490 feet and it is believed the top of the Onondaga is at 4,457 feet.

In Washington County, the test of Norwood P. Johnston and others on the James McBurney farm in Mount Pleasant Township is cementing hole after recovering the tools lost in a gas blowout.

WEST VIRGINIA

Several small producers were completed in West Virginia. In Ritchie County, W. H. Mossor completed a test on his own property in Murphy district in the Big Lime at 1,886 feet. It is good for 2 bbls. a day before shot.

In Tyler County, the Gale Oil Co. completed No. 20 George T. Gale, in Union district, in the Maxton and Injun sands at 1,507 feet. It is good for 1 bbl. a day.

In Wetzel County, George F. Eagan completed a test on the F. T. and L. V. West farm in Proctor district in the Gordon sand at 2,970 feet. It is starting off at 10 bbls. a day. In Marshall County, Guy B. and A. C. Patterson deepened No. 1 W. B. Patterson, in Liberty district, to 2,378 feet starting at 2,227 feet. It is showing 8 bbls. a day from the Big Injun sand at 2,374 feet.

In Wood County, E. C. Hartman completed a test on the Phillip Stilenbar farm in Walker district in the Maxton sand at 1,800 feet. It is a small producer making about one-quarter barrel a day.

Gas Wells

In Braxton County, the Pittsburgh & West Virginia Gas Co. completed No. 7,634 A. J. Wright, Birch district, at 1,280 feet as a fair gas well. The Salt sand was at 1,246 feet, with 1,243,000 feet of gas at 1,253-78 feet.

In Calhoun County, Jeff Miller and others completed No. 2 Bert Wears in Washington Township at 2,261 feet. It is a gas well gauging 308,000 feet a day before shot. Gas was found at 2,196-2,201 feet and 2,245-61 feet. In Center district, Adams & Connelly test on the Shafer & Deems farm was a dry hole at 1,917 feet.

In Gilmer County, the Pittsburgh & West Virginia Gas Co. completed two wells in Glenville district. No. 2 Mary L. Fitzpatrick was bottomed in Big Injun at 1,651 feet and gauged 400,000 feet a day. No. 2 C. L. Carson heirs was drilled through Big Injun to 2,047 feet and was dry. In Center district, Carnegie Natural Gas Co. completed No. 5 Duncan Despard at 1,902 feet. Maxton sand was at 1,882 feet, with 188,000 feet of gas a day at 1,885-1,900 feet.

In Lincoln County, Summer & Swanson completed a second test on the J. A. Thompson farm in Sheridan district in Brown shale at 3,140 feet. It gauged nearly 2,000,000 feet a day. In this district Martin Gas Co. is completing the test on the Wilkerson & Summerson farm and it gauges 1,800,000 feet a day.

In Ritchie County, the Costadon Oil & Gas Co. completed No. 2 Frank W. Hill in Murphy district in the Injun sand at 2,198 feet and it is a gas well gauging 62,000 feet a day. In Union district, Freymeir & Co. deepened No. 6 George Hammer Estate to 2,171 feet, Squaw sand, and it is dry. In Grant district, Moats & Richards drilled the Clem Ingram test to 1,960 feet, Squaw sand, and it is also dry.

In Wirt County, Septer W. Douglas drilled on the Al Blankenship farm in Spring Creek district to 1,090 feet, through Second Cow Run sand, and it was dry and abandoned.

In Roane County, the Hope Natural Gas Co. completed No. 7,782 on the Mary Goff Morford farm in Spencer district as a 750,000-foot gas well in the Injun sand; total depth 2,281 feet. In Harper district O. D. Jones completed No. 2 W. H. Westfall in the Salt sand

(Continued on Page 275)

Kansas Developments

By
DAL DALRYMPLE

SILICA EXTENDED EASTWARD; COMPLETE BIG BEMIS PUMPER

The Silica field, currently the largest producing area in Kansas, was extended one-fourth mile eastward the past week at Continental Oil Co. No. 1 Gum, NW SW SE section 34-19-9w. When operators drilled out plugs of 7-inch casing set at 3,315 feet in Siliceous lime, the well filled with 3,200 feet of oil overnight. It was to be deepened a few feet before acidizing and completing.

The Kansas allowable hearing for October will be held at Wichita, September 24, E. G. Dahlgren, director of the conservation division of the Corporation Commission, announced. Gas allowables in the Otis field, Rush County, also were scheduled to be determined at that time. The Corporation Commission's gas waste hearing on the Burrton field of Reno and Harvey counties has been postponed from September 23 to October 27 to permit additional time for field tests to be used in determining a gas-oil ratio for the field, Mr. Dahlgren said. Field crews now are assembling information for the hearing.

Deep Rock Oil Corp. of Tulsa has opened Kansas district offices in Wichita, with James B. Templeton in charge of land and geological departments there. Harry Layman will be the company's scout in Kansas. The Deep Rock company is active in the Bemis field of Ellis County and the Eaton pool of Cowley County, with leaseholds in other areas.

Wildcat Completions

Shell Petroleum Co. No. 1 Batt, SE cor. section 35-15-14w, wildcat one mile west of the Trapp pool, southern Russell County, pumped 230 bbls. of oil in the first 4 hours of potential test, making potential of 1,276 bbls. It was considered an extensioner of the Trapp area and opens a large sector to development. Top of Siliceous lime was 3,297 feet, total depth 3,320 feet.

Bridgeport Machine Co. and others No. 1 Habiger, NW cor. section 5-18-10w, Rice County, found Kansas City lime at 2,924 feet, had pay at 3,001 feet and was bottomed at 3,016 feet. It flowed 525 bbls. of oil naturally in 7 hours. After acidizing, it flowed 671 bbls. of oil in the first 4 hours of potential test, 801 bbls. the next 4 hours, with a flow of 203 bbls. in the eighth hour. It made potential of 4,027 bbls. This is one of the more important of the recent completions in Kansas, due to its almost midway location between the Bloomer pool of Barton and Ellsworth counties and the Stumps pool of Rice County. It is considered as an extensioner of the Bloomer pool into Rice County and may be the connecting link between the two pools.

Western Kansas Oil & Refining Corp. and others No. 1 Schmeidler, NW cor. section 22-12-17w, Ellis County wildcat, was dry and abandoned at 3,700 feet, total depth. Siliceous lime was found at 3,671 feet, and the hole filled with water from 3,692-3,700 feet.

Westgate-Greenland Oil Co. No. 1 Hagerman, NE cor. section 20-19-16w, wildcat in Rush County, topped Siliceous lime at 3,850 feet and was dry and abandoned at 4,030 feet, total depth.

Helmerich & Payne and others No. 1 Sessler, SW SW SE section 29-20-11w, Barton County wildcat, was dry and abandoned at 3,423 feet, total depth.

J. B. Hanna No. 1 Luce, SE SE SW section 21-20-13w, wildcat south of Great Bend, Barton County, topped Siliceous lime at 3,560 feet and was dry and abandoned at 3,578 feet. Several showings of oil were logged in upper formations and it once was given a good chance to open a pool, but water predominated.

California-Illinois-Kansas Oil Co. No. 1 Hughes, SW NW SE section 13-22-9e, Chase County wildcat, pumped 17 bbls. of oil and 200 bbls. of water in 24 hours, but was abandoned in Mississippi formation at 2,600-2,610 feet, total depth.

Home Stake Royalty Co. No. 1 McCormick, SW SW NW section 23-25-3w, wildcat in Sedgwick County, topped Siliceous lime at 4,084 feet and was dry and abandoned at 4,150 feet, total depth. It had shows of oil and gas in Mississippi and Viola formations.

Ellis County

Eight wells were completed in the busy Bemis field and four elsewhere in Ellis County. Margay Oil Co. No. 6 Bemis B, SW SE SW section 15-11-17w, topped Siliceous lime at 3,399 feet, total depth 3,408 feet, pumped 407 bbls. of oil in the first 4 hours and made potential of 2,380 bbls.

Ryan Consolidated Corp. No. 5 Bemis B, SE SE NW section 22-11-17w, had Siliceous lime at 3,437 feet, was bottomed at 3,444 feet, pumped 425 bbls. of oil the first 4 hours and made potential of 2,460 bbls.

Cities Service Oil Co. No. 10 Bemis, SW SW SE section 21-11-17w, pumped 337 bbls. of oil the first 4 hours, potential 2,025 bbls. Top of Siliceous lime was 3,374 feet, total depth 3,384 feet. Same company's No. 2 Johansen, NE NW NE section 22-11-17w, had Siliceous lime at 3,442 feet, total depth 3,449 feet, pumped 135 bbls. of oil in 3 hours, down 40 minutes, making potential of 988 bbls.

Deep Rock Oil Corp. No. 12 Baumer, NW NE NE section 27-11-17w, found Siliceous lime at 3,381 feet, total depth 3,392 feet, pumped 556 bbls. of oil in 4 hours, potential 3,338 bbls. Same operator's No. 16 Baumer, NW SE NW section 27-11-17w, had Siliceous lime at 3,541 feet, total depth 3,555 feet, pumped 506 bbls. of oil in 4 hours; later on potential test, pumped 495 bbls. in the first 4 hours, making potential of 2,935 bbls. The No. 12 Baumer extended the pool one location eastward and rates as one of the biggest pumping wells in Kansas.

Texas Co. No. 9 Bemis A, SW SW NE section 28-11-17w, made potential of 2,047 bbls. of oil from Siliceous lime topped at 3,399 feet, total depth 3,410 feet. Same company's No. 11 Bemis A, NW SW NE section 28-11-17w, topped Siliceous at 3,400 feet, was bottomed at 3,404 feet, and made potential of 2,646 bbls. of oil.

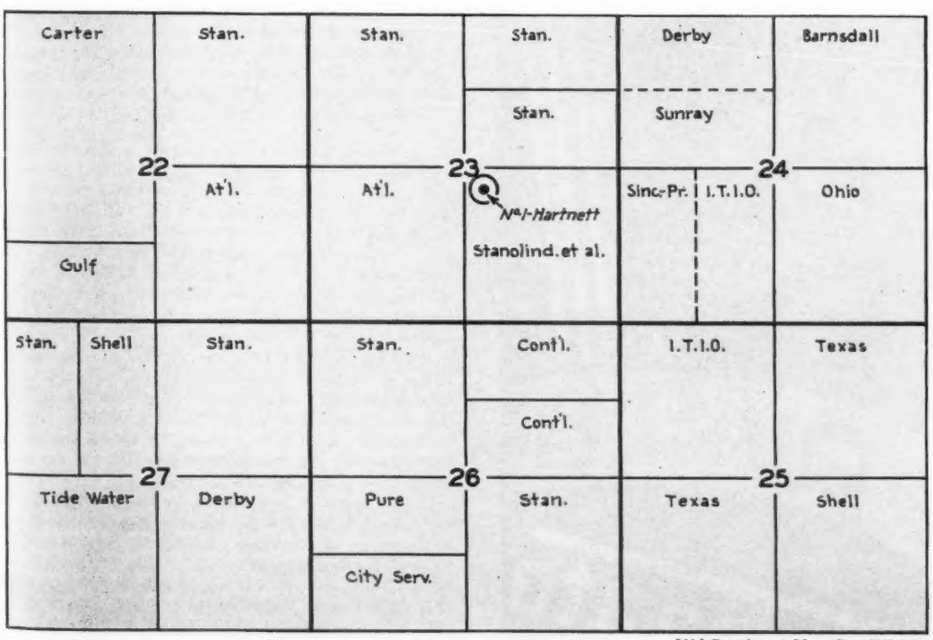
In the Cress area, Sinclair Prairie Oil Co. No. 2 Cress, SE SE NE section 13-11-17w, pumped 228 bbls. of oil in the first 4 hours from Siliceous lime topped at 3,331 feet, total depth 3,343 feet. Potential rating was 1,365 bbls.

Phillips Petroleum Co. No. 3 Shutts, SE SE NE section 5-12-17w, in the Shutts area, had Siliceous lime at 3,494 feet, total depth 3,522 feet, plugged back to 3,497 feet, pumped 121 bbls. of oil the first 4 hours, making potential of 729 bbls.

Gulf Oil Corp. No. 1 Clause, SW SE SW section 7-11-16w, topped Siliceous lime at 3,324 feet, total depth 3,336 feet, was acidizied, pumped 291 bbls. of oil the first 4 hours of test and made potential of 1,749 bbls.

Transwestern Oil Co. No. 1 Solomon, NE NE NW section 33-11-19w, Solomon pool, found Siliceous lime at 3,631 feet, was bottomed at 3,636 feet, and made potential of 850 bbls. of oil.

New work in Ellis County: Texas Co. No. 1 F. A. Bemis A, SE NW NE section 28-11-17w, drilling ahead; Bay Petroleum Co. and others No. 1 Curtis, SE SE SW section 1-13-18w, spudded; L. H. Wentz No. 8 Bemis, NW NE NW section 28-11-17w, rigging up rotary; same operator's No. 7 Bemis, SW NE NW section 28-11-17w, location; same operator's No. 6 Bemis, NW SE NW section 28-11-17w, set 10-inch at 1,210 feet; Cities Service Oil Co. No. 1 Holb A, SW cor. section 14-11-17w, rig; Magnolia Petroleum Co. No. 4 Johansen, SW NW NE section 22-11-17w, rig; Cities Service Oil Co. No. 5 Johansen, SW NW NE section 23-11-17w, rig; same company's No. 12 Bemis, NW SW SE section 21-11-17w, location.



Mid-Continent Map Co., Wichita

A new producing area has been opened in Stafford County at Stanolind Oil & Gas Co. No. 1 Hartnett, section 23-24-11w

Barton County

Texas Co. No. 6 Schmidt, SE NW NW section 36-19-11w, Barton County sector of the Silica field, swabbed 265 bbls. of oil in 10 hours and made potential of 2,205 bbls. from Siliceous lime topped at 3,290 feet, total depth 3,293 feet.

Stanolind Oil & Gas Co. No. 1 Knop, NE cor. section 32-19-11w, had Siliceous lime at 3,336 feet, was bottomed at 3,343 feet, acidized and made potential of 88 bbls. of oil.

Sinclair Prairie Oil Co. No. 1 Roth, SW cor. section

28-19-11w, had Siliceous lime at 3,329 feet, water intruded and it was dry and abandoned at 3,403 feet, total depth.

Ohio Oil Co. No. 1 Hirsch, NW NW NE section 22-19-11w, found Kansas City lime at 3,046 feet, cemented 8-inch casing at 3,093 feet, was bottomed at 3,113 feet and made potential of 1,865 bbls. of oil.

Magnolia Petroleum Co. No. 12 Roetzel, SE NW SE section 24-20-11w, Peter pool, had Siliceous lime at 3,250 feet, total depth 3,253 feet, swabbed 315 bbls. of oil in 5 hours, making potential of 1,828 bbls.

In the Ainsworth pool, Indian Territory Illuminating Oil Co. No. 3 Hogan, NW SW SW section 34-16-13w, found Siliceous lime at 3,395 feet, was bottomed at 3,406 feet, swabbed 191 bbls. of oil in 4 hours, was acidized, and made potential of 712 bbls.

Continental Oil Co. No. 6 L. W. Ainsworth, SE SW NE section 33-16-13w, pumped 293 bbls. of oil in 8 hours, making potential of 615 bbls. Siliceous lime was topped at 3,400 feet, total depth 3,414 feet.

Operations reported for the first time in Barton County: Texas Co. No. 1 Disque, SE SE SW section 3-17-11w, drilling ahead; Indian Territory Illuminating Oil Co. No. 2 Schrepel B, NE NW SW section 25-20-11w, cellar; same company's No. 5 Bryant, NW cor. section 25-20-11w, rig; Magnolia Petroleum Co. No. 12 Roetzel, NE SW SE section 24-20-11w, set 13-inch casing at 197 feet; Stanolind Oil & Gas Co. No. 1 Kuhlman, SE cor. section 16-18-15w, location; Darby Petroleum Co. No. 3 Burmeister, NW SW SE section 3-17-11w, rig; Ohio Oil Co. No. 1 Settinger, NE NW NE section 1-16-14w, location; Stanolind Oil & Gas Co. No. 5 Rieman, SE SW NW section 34-16-13w, rig; same company's No. 1 Morrison B, SE SE NW section 26-16-13w, rig; Shell Petroleum Corp. No. 1 Peterman, SE NE SE section 13-16-13w, drilling at 600 feet; Cities Service Oil Co. No. 3 Bitters III, SE NW NW section 5-16-13w, rig.

Texas Co. No. 1 Hoffman, NW cor. section 6-16-13w, an old well in the Trapp district, was deepened from 3,286 feet to 3,294 feet, and made potential of 2,520 bbls. of oil, recompleted.

Russell County

The largest of three wells completed in the Russell County sector of the Trapp field was W. I. Southern, Inc. No. 10 Boomhower A, NW NW NE section 30-15-13w. After finding Siliceous lime at 3,263 feet and stopping at 3,268 feet, total depth, it was acidized and made potential of 2,647 bbls. of oil.

Coralena Oil Co. No. 2 Sellens Heirs B, SE NW NW section 30-15-13w, had Siliceous lime at 3,318 feet, total depth 3,320 feet, was acidized and made potential of 2,520 bbls. of oil.

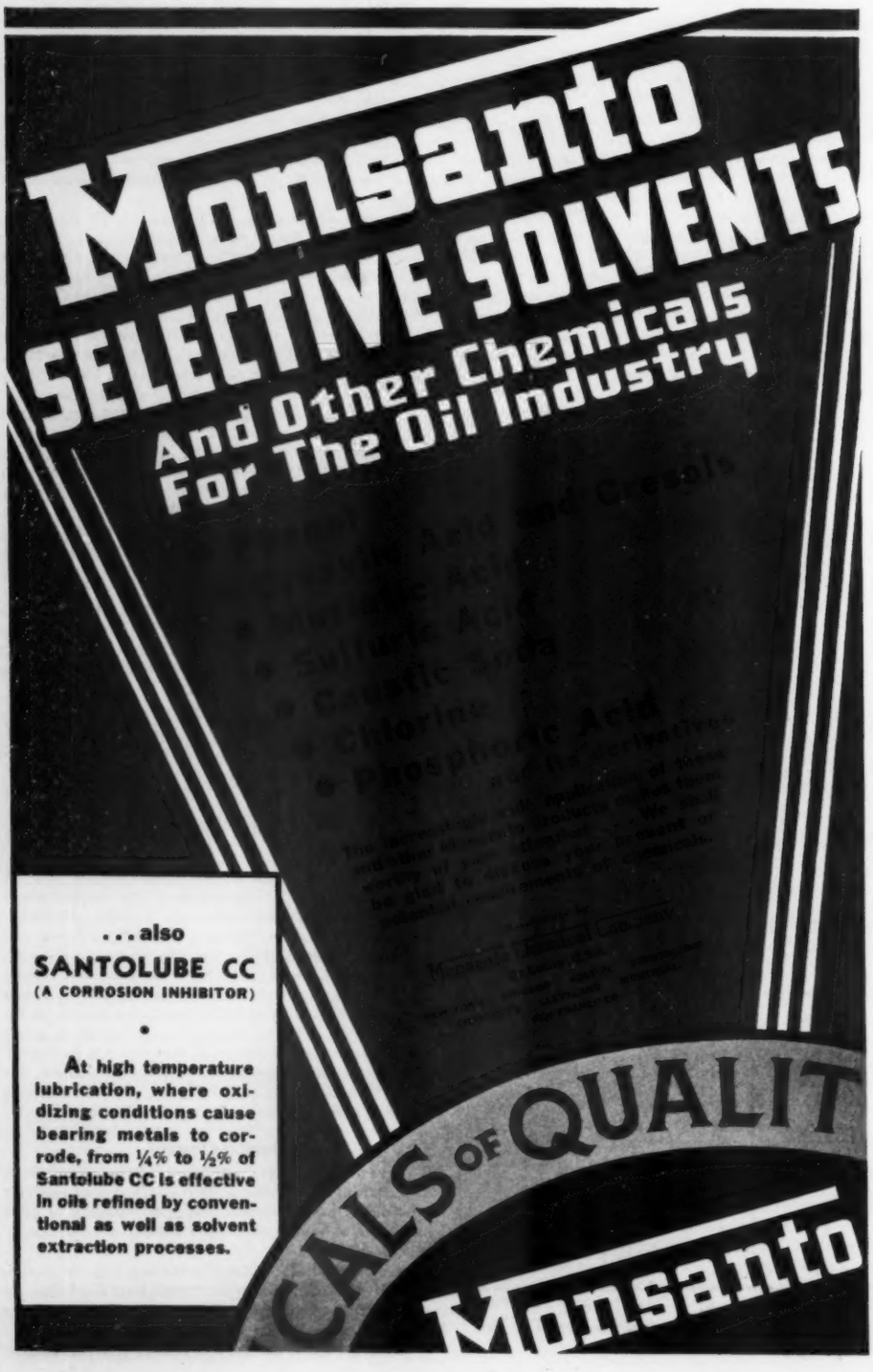
W. I. Southern, Inc. No. 2 Chester Sellens, NE NE NW section 29-15-13w, was acidized and swabbed 100 bbls. of oil in 4 hours, then pumped 167 bbls. in the first 4 hours of potential test, making potential of 967 bbls. Top of Siliceous lime was 3,304 feet, total depth 3,309 feet.

In the Sellens pool, Sinclair Prairie Oil Co. and others No. 4 H. J. Sellens, SE NW NW section 36-15-13w, had Siliceous lime at 3,365 feet, total depth 3,375 feet, was acidized and made potential of 713 bbls. of oil.

Carter Oil Co. No. 6 Detrich, SW SW SE section 8-15-13w, found Siliceous lime at 3,200 feet, total depth 3,207 feet, acidized, pumped 248 bbls. of oil in 6 hours, reacidized, pumped 233 bbls. of oil in 4 hours, making potential of 1,395 bbls.

Cities Service Oil Co. No. 1 Strecker C, NE NW SW section 36-14-14w, topped Kansas City lime at 2,905 feet, had Granite Wash at 3,130-53 feet, total depth, plugged back to 2,961 feet, acidized, pumped 48 bbls. of oil the first 4 hours, potential 362 bbls. of oil, with 15 per cent water. Same company's No. 2 Strecker C, SE NW SW section 36-14-14w, was an abandoned location.

New work in Russell County: Mid-Continent Petroleum Corp. No. 2 Letsch, NW SW NW section 26-14-13w, pits; Cities Service Oil Co. No. 1 Miller D, NW SW SE section 31-14-13w, drilling at 375 feet; same company's No. 6 Strecker A, SE NW NE section 35-14-14w, location; same company's No. 13 Boomhower, NE SW NE section 25-15-14w, rigging up rotary; same company's No. 14 Boomhower, SW SW NE section 25-15-14w, spudded; the company's No. 15 Boomhower, NW NE NE section 25-15-14w, building rig; Phillips Petroleum Co. and others No. 1 Deines, NE NE NW section 33-14-14w, moving in tools; Trapp Drilling Co. and others No. 1 Polcyn, NE NE SE section 34-14-15w, rig; Central Petroleum Co. No. 8 Foster B, NW SW NE section 3-14-15w, rigging up; Coralena Oil Co. No. 1 William Sellens, SW SW SE section 19-15-13w, moving in material; same operator's No. 4 Hank Sellens, SW NE NW section 30-15-13w, spudded; same operator's No. 5 Hank Sellens, NE NE NW section 30-15-13w, location; Skelly Oil Co. No. 7 Neidens, NW SW SE section 32-15-13w, rigging up; Shell Petroleum Corp. No. 1 Dumler, SW cor. section 36-15-14w, building rig; Parks and others No. 1 Gorham Estate, SW NW NE section 19-15-15w, cellar and pits; Murfin & Vernon No. 1 Pearson, NE cor. section 31-15-15w, cellar.


Monsanto
SELECTIVE SOLVENTS
And Other Chemicals
For The Oil Industry
...also
SANTOLUBE CC
(A CORROSION INHIBITOR)
•
At high temperature lubrication, where oxidizing conditions cause bearing metals to corrode, from ¼% to ½% of Santolube CC is effective in oils refined by conventional as well as solvent extraction processes.
CALS OF QUALIT
Monsanto

Rice County

Republic Natural Gas Co. completed one of the largest producers of recent weeks in Kansas at No. 3 Oden, NE NW NW section 5-21-7w, Saxman-Theede district, Rice County. It flowed 1,003 bbls. of oil the first 4 hours, 893 bbls. the second 4 hours and made potential of 5,356 bbls. Top of Conglomerate was 3,328 feet, pay 3,334–36 feet, total depth.

Garden-Haines Oil Co. No. 5 Stange, SW NW NE section 16-21-7w, had Conglomerate at 3,362 feet, total depth 3,389 feet, pumped 128 bbls. of oil in 4 hours, potential 768 bbls.

In the Silica district, Stanolind Oil & Gas Co. No. 2 Hathaway, SW NW SW section 33-19-10w, had Siliceous lime at 3,277-78 feet, total depth, and made potential of 2,440 bbls. of oil. Same company's No. 2 Manke, SE SW SE section 28-19-10w, topped Siliceous lime at 3,247 feet, total depth 3,266 feet, plugged back to 3,257 feet, was acidized but was dry and abandoned. Same company's No. 1 Manke, SW SW SE section 28-19-10w, had Siliceous at 3,257 feet, total depth 3,272 feet, plugged back to 3,261 feet and was dry and abandoned.

Gulf Oil Corp. No. 4 Malone, NE NW NE section 18-20-9w, Chase area, found Siliceous lime at 3,311 feet, total depth 3,321 feet, acidized, pumped 364 bbls. of oil the first 4 hours, making potential of 1,813 bbls.

Saco Oil Co. No. 2 Wickerham, SW SE SE section 7-20-9w, had Siliceous lime at 3,308 feet and was dry and abandoned at 3,339 feet, total depth.

First reports of new activity in Rice County: Elbar Corp. No. 1 Ehlers, NE NE SE section 8-21-9w, moving in material; Bell Oil & Gas Co. No. 1 Timbers, NW NW NE section 8-21-8w, cellar and pits; Cities Service Oil Co. No. 3 Proffitt, SW NW SE section 6-20-9w, old well rigging up to deepen; Stanolind Oil & Gas Co. No. 8 Panning, SE SE NW section 33-19-10w, rig; Shell Petroleum Corp. No. 1 Reese, NW NW NE section 22-19-9w, pits; Bridgeport Machine Co. No. 3 Habiger, SW NW NW section 5-18-10w, digging pits; Ohio Oil Co. No. 1 Lansing,

SE NE NE section 26-18-8w, location; Continential Oil Co. and others No. 2 Wood, NW SW SE section 12-12-8w, rigging up rotary.

Estimated Daily Production

Estimated daily production of Kansas for the week ending September 11, and for the preceding week, was as follows:

	Barrels	
	Sept. 11	Sept. 4
Oxford City	1,400	1,575
Burrton	14,175	14,500
Ritz-Canton	4,975	5,875
Graber	2,050	2,400
Hollow-Nikkel	2,675	2,775
Lerado	2,425	2,450
Voshell	2,500	2,350
Wellington	3,200	3,275
Ellsworth County:		
Lorraine	3,475	2,925
Other pools	1,510	1,225
Rice-Barton counties:		
Bloomer	3,400	3,775
Chase	6,875	6,725
Geneseo	1,725	2,175
Raymond	1,850	1,350
Silica	17,200	18,460
Keesling	1,450	1,450
Hauschild	1,450	2,100
Miscellaneous Rice	8,445	7,735
Miscellaneous Barton	6,790	4,780
Russell County:		
Fairport	1,965	2,260
Gorham	2,025	2,435
Russell	1,805	2,890
Sullivan	8,270	8,935
Trapp	14,310	14,170
Miscellaneous Russell	7,995	6,945
Sedgwick County:		
Valley Center	1,005	1,080
Miscellaneous	2,715	2,955
Ellis County:		
Bemis	4,525	5,225
Miscellaneous	3,235	3,770
Kingman County	505	560
Stafford County	2,950	3,055
Greenwood County	10,000	10,000
Butler County	15,310	15,300
Other fields	24,215	25,055
Total Kansas	188,400	192,535

Ellsworth County

Phillips Petroleum Co. No. 4 Patzner, SE SW NW section 30-17-10w, Ellsworth County extension of the Bloomer pool, found Siliceous lime at 3,287-99 feet, total depth, swabbed 250 bbls. of oil in 5 hours, was acidized and pumped 418 bbls. of oil in the first 4 hours of test, making potential of 2,509 bbls.

Fred Jones and others No. 2 Meyers, NW SW NW section 18-17-10w, in the Ellsworth County sector of the South Breford pool, made potential of 1,236 bbls. of oil from Siliceous lime topped at 3,275 feet, pay 3,283 feet, total depth 3,314 feet.

Hinkle and others No. 1 Alden, SE SE SW section 17-17-10w, was moving in tools. Skelly Oil Co. No. 1 Zink, SW cor. section 32-17-10w, was a location.

McPherson County

Continental Oil Co. and others No. 9 Hetzke, C W½ W½ NE section 29-21-1w, Graber pool, McPherson County, found Hunton lime at 3,266 feet, was bottomed at 3,310 feet, acidized, pumped 128 bbls. of oil in 4 hours and made potential of 770 bbls.

Continental Oil Co. No. 4 Kindblade, SW SE SW section 20-21-1w, pumped 65 bbls. of oil in 4 hours and made potential of 390 bbls. from Hunton lime topped at 3,280 feet, total depth 3,320 feet.

Ohio Oil Co. No. 1 Decker, SE SW NW SE section 20-21-1w, was a location.

Reno County

No new wells were completed in Reno County but A. M. Ballard and others No. 1 Skelly, NW SE NE section 16-24-4w, an old well in the Burrton area, was deepened from 3,365 feet to 3,378 feet, acidized and made potential of 589 bbls. of oil, with 35 bbls. of water, recompleted.

New work in Reno County: Shaffer and others No. 1 Hill, SW SE SE section 18-24-4w, set 8¼-inch casing at 3,331 feet; Olson Drilling Co. No. 3 Querfeld, SE NE SE section 27-23-4w, cellar and pits; Cities Service Oil Co. No. 2 Harvey B, SW SE SW section 1-23-4w, rigging up rotary.

Greenwood County

Four producers and three failures were completed in Greenwood County. Superior Oil & Gas Co. No. 14 Jones, SW NE SW section 21-23-13e, North Virgil area, topped Mississippi lime at 1,720 feet, had pay at 1,729-42 feet, total depth, was acidized and pumped 96 bbls. of oil and 10 bbls. of water in 24 hours.

Oko Oil Co. No. 9 Lovett-McNeill, C NE SW section 22-23-13, had Bartlesville sand at 1,545 feet, total depth 1,583 feet, was shot and pumped 75 bbls. of oil daily.

O. F. Duncan No. 4 Schredler, C S½ SW SW section 16-23-13, topped Mississippi lime at 1,732 feet, pay 1,743 feet, total depth 1,751 feet, was acidized and completed as a 50-bbl. pumper.

Mendenhall & Landon No. 4 Gilroy, CSL SE NW section 5-25-13, was a 20-bbl. pumper in sand topped at 1,496 feet, total depth 1,520 feet.

Cleveland Oil Co. No. 2 Nixon, SE NW SE section 6-24-13, was dry and abandoned at 1,619 feet, total depth. Shull Drilling Co. No. 7 Allis, NW SE NW section 17-24-13, was dry and abandoned at 1,625 feet, total depth. Youker & Davis No. 1-A Olson, SE SE NW section 28-26-9, was dry and abandoned at 2,828 feet, total depth.

O. F. Duncan No. 5 Schindler, SW NE SW SW section 16-23-13, was a machine.

Woodson County

B. & B. Oil Co. No. 2 Corkery, NE NW NW section 29-25-14, Woodson County, had sand at 1,392-1,415 feet, total depth, was shot and flowed 80 bbls. of oil daily, completed.

Sumner County

Stelbar Oil Corp. No. 6 Frankum, NW NE NE section 32-31-1w, Wellington pool, Sumner County, topped Chat at 3,656 feet, total depth 3,711 feet, was acidized and made potential of 186 bbls. of oil.

R. J. Wixon and others No. 1 Newton, SE cor. section 21-30-2e, an old Sumner County well being deepened, set 12½-inch casing at 1,201 feet.

Stafford County

Cities Service Oil Co. No. 3 Benton, C E½ E½ SW section 23-24-13w, St. John area, Stafford County, topped Siliceous lime at 4,128 feet, total depth 4,133 feet, plugged back and perforated casing at 3,718-43 feet, acidized, pumped 136 bbls. of oil and 409 bbls. of water in 21 hours; later, pumped 7½ bbls. of oil and 493 bbls. of water in 24 hours and was abandoned.

New work in Stafford County: Pure Oil Co. No. 1 Rume, SW cor. section 27-21-12w, cellar; Stanolind Oil & Gas Co. No. 1 Kentzel, NW cor. section 34-21-12w, rigging up rotary; same company's No. 1 Wells, NW NW SW section 32-22-11w, location; same company's No. 3 Sepengenburg, NW SW SW section 29-22-11w, cellar.

Marion County

Rickey and others No. 1 Propp, NW SW SW section 8-19-4e, Marion County, was an abandoned location.

R. E. Youker No. 1 Martin, SE cor. section 3-17-4, was a machine.

Other First Reports

Barber County: Kansas Oil Corp. No. 1 Mease, NE SE SE section 27-30-11w, rig.

Chautauqua County: C. E. Roth No. 1 Guinn, C E½ SE NE section 10-35-12, moving in; same operators No. 1 Shircliff, NE NE NW section 15-35-11, rigging up machine; W. G. Buffington No. 1 Fisher, SW SW NW section 10-34-9, drilling at 750 feet; Siefkin & Republic Natural Gas Co. No. 2 Burton, NE SW SW SE section 27-33-12, drilling at 1,300 feet; Sinclair Prairie Oil Co. No. 49 Casement, C N½ S½ section 32-33-11, an old well being deepened, drilling at 1,825 feet; Vineyard and others No. 1 Welch-Knapp, SE SW SW section 19-32-13, location; Brosius and Neeley No. 1-A Landon & Floyd, SW NW SE section 29-32-11, drilling at 380 feet.

Cowley County: G. M. Smith and others No. 1 Henderson, SW cor. section 25-32-6, location; W. K. Royalty No. 3 Ferguson, NE NE NW section 28-30-8, drilling at 600 feet.

Elk County: Coronado Oil Corp. No. 1 Atkinson, SW NE SW section 22-29-10, drilling at 1,400 feet.

Gray County: Reynolds No. 1 Warkins, C SW section 32-28-28w, wildcat, cellar.

Harvey County: Ohio Oil Co. No. 1 Neufeld, SE SE NE section 14-22-2w, location; Derby Oil Co. No. 1 Jerome, C S½ SW SW NE section 30-23-3w, rig; Hipple No. 3 Norris, SE SW SW section 30-23-3w, spudded.

Pratt County: Stanolind Oil & Gas Co. No. 1 Hartsell, NW NW SW section 14-20-12w, cellar.

Scott County: Atlantic Refining Co. No. 2 Pyle, C NW SE section 14-20-33w, location.

Trego County: McNeely and others No. 1 Hille, NW SE SE NE section 25-15-24w, location; Thurman Hui and others No. 1 Lawson, SW cor. section 7-14-22w, building rig.

Alabama Test

Joe Modisett of Shreveport, La., is drilling Tuscaloosa red beds below 4,000 feet in No. 1 McCorvey, section 20-9n-2w, Choctaw County, deep test on the Hatchetigbee anticline.

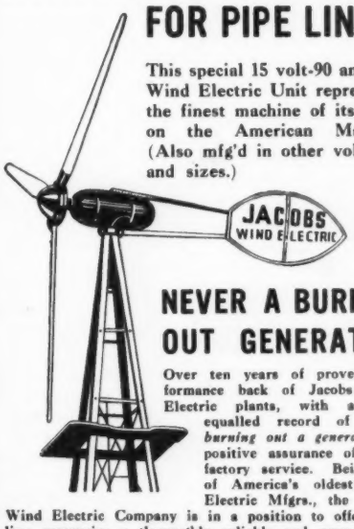
LUDLOW *Special Valves*

Ludlow is well equipped to furnish special valves for drilling, pipe line and refining operations. Over seventy years' experience in valve design and a broad knowledge of oil field requirements assures satisfactory performance.

Consult Ludlow engineers. Information and quotations gladly furnished.

The LUDLOW VALVE MFG. CO.
TROY, NEW YORK

CATHODIC PROTECTION FOR PIPE LINES



This special 15 volt-90 ampere Wind Electric Unit represents the finest machine of its type on the American Market. (Also mfg'd in other voltages and sizes.)

JACOBS WIND ELECTRIC

NEVER A BURNED OUT GENERATOR

Over ten years of proven performance back of Jacobs Wind Electric plants, with an unequalled record of *never burning out a generator*, is positive assurance of satisfactory service. Being one of America's oldest Wind Electric Mfgrs., the Jacobs Wind Electric Company is in a position to offer pipe line companies a thoroughly reliable and proven unit for the cathodic protection of pipe lines, where high line current is not available.

PATENTED PROVEN GOVERNOR

The patented flyball governor that changes the propeller blade pitch for speed control in high winds, the large direct drive slow speed generator and its simple design throughout are some of the reasons for the unequalled performance records of these plants.

Write for complete literature.

THE JACOBS WIND ELECTRIC CO., Inc.
MINNEAPOLIS, MINNESOTA

West and North Texas

PROMISE OF PIPE LINES TO NEW NORTHERN TIER POOLS

By
L. E. BREDBERG

FORT WORTH, Tex., Sept. 13.—Since the northern tier of counties in the West Texas district, Gaines, Yoakum, Hockley and Cochran, annexed the spotlight in oil news, more particularly in the past four weeks, outpost and wildcat discoveries in the four counties continue to attract most of the attention given the Permian Basin.

Pipe line outlets were needed for the first two discovered pools, in southeastern Yoakum and southeastern Cochran counties, and with the discovery of still other pools in these and adjacent counties, the lack of outlet became acute. Relief from the situation is now in sight. Humble Oil & Refining Co. is preparing to lay about 30 miles of 6-inch line from the Hobbs field in New Mexico, to connect with the Wasson field in northern Gaines County, thence continuing its line to connect with other pools in the sector. The Texas-New Mexico Pipe Line Co. is contemplating laying a line from the Hobbs field, and the Continental Oil Co. is expected to lay a line from its Wasson field in northern Gaines to connect with the Humble Pipe Line Co.'s line in the Means field in northeastern Andrews County.

With one or more lines tying into the more active pools in this new producing area, the other pools, which have seen but little development so far, due to lack of outlet, are also expected to take on active development in the next six months or year.

Duggan Field

The Duggan field in southeastern Cochran County, the northernmost producing pool in the district, has seen little drilling thus far, but this week P. N. Wiggins and others No. 1 Carrie Slaughter Dean, in Labour 26, League 92, Lipscomb County School Lands Survey, approximately 4 miles northwest of the Duggan pool opener, is showing for a producer, and either a new pool opener or an extension well, which will be proven later when other tests are drilled. The test logged the saturated lime at 4,995 feet and shut down at 5,033 feet, in lime, to run tubing preparatory to testing and probably acidizing later. It may be carried deeper if the first test does not appear sufficiently convincing to warrant completing at this depth. It is standing with 2,000 feet of oil in the hole, the oil testing 29.4 gravity. This test is running about 50 feet higher than the Duggan discovery, which makes the structure appear to be running to the northwest, but the second test the same operators are drilling about 4 miles north and a little east of the discovery, and about 5 miles northeast of their first venture, may change the picture when it is completed. It is in the northeast corner of League 58, Martin County School Lands.

The Duggan field was opened in October, last year, and only one other well has been completed in the area since the discovery, a well nearly a half mile to the northwest. If this makes a producer it will result in the immediate drilling of four offsets, as different companies hold adjacent labours, which are checkerboarded to such an extent that development should be comparatively rapid when the area obtains a pipe line outlet. The outcome of this test will be closely watched for its location in regard to the original pool makes it exceptionally important.

Water Worries

The wildcat of the Texas Co. in the southwestern part of Yoakum County, on the J. A. Whittenburg Estate lands, in section 794, Block D, John H. Gibson Survey, which last week appeared as a new pool opener or an extensioner to the new producing area about 4 miles to the east opened by the Denver Producing & Refining Co., ran into sulfur water at 5,177 feet and was drilled to 5,180 feet and shut down preparatory to plugging back to eliminate the water, and shoot or acidize. The first showing of oil was logged in saturated lime at 5,005-25 feet, with increased saturation at 5,126-31 feet, and at 5,131-34 feet, oil rising in the hole as it was carried deeper until sulfur water was uncovered.

It appears as if many pools would be found in this sector of the district but lack of porosity is worrying the operators. About 3 miles north by east of the above Texas-Walker test, Moore Brothers No. 1 Cleveland, in section 706, Block D, same survey, is discouraging as it, too, developed sulfur water trouble when drilled to 5,506 feet. It was plugged back to 5,328 feet, where it bailed mostly water and a little oil when allowed to stand at various intervals. It will probably be acidized.

On the extreme western side of Yoakum County, and near the central part, P. N. Wiggins and others have staked location for a wildcat in section 359, Block D, John H. Gibson Survey. It is about 5 miles northwest of a dry hole abandoned at 5,410 feet and about 7 miles due west of another dry hole given up at 5,328 feet.

Abandonments

Two tests, located 4 miles apart, from north to south, were abandoned in the northwestern corner of Gaines County. The Argo Royalty Company gave up its No. 1 Jones, in section 2, Block A-7, PSL Survey, at a total depth of 5,296 feet, and the Continental Oil Co. No. 1 Jones, in section 22, same block and survey, was abandoned at a total depth of 5,156 feet after plugging back for a try in the Yates sand. The company has staked location for another well on the Jones lands, 1½ miles southeast of the first test, and in section 1, Block A-8.

A test in the same part of the county which appears doomed to abandonment, is that of the Amerada Petroleum Corporation on the Armstrong lands, in section 456, Block G, C.C.S.D. & R.G.N.G. Survey, about 4½ miles northeast of the Continental dry hole and about the same distance southwest of the Wasson field. It was drilled to 5,079 feet, encountering water, and plugged back to 5,050 feet to test here.

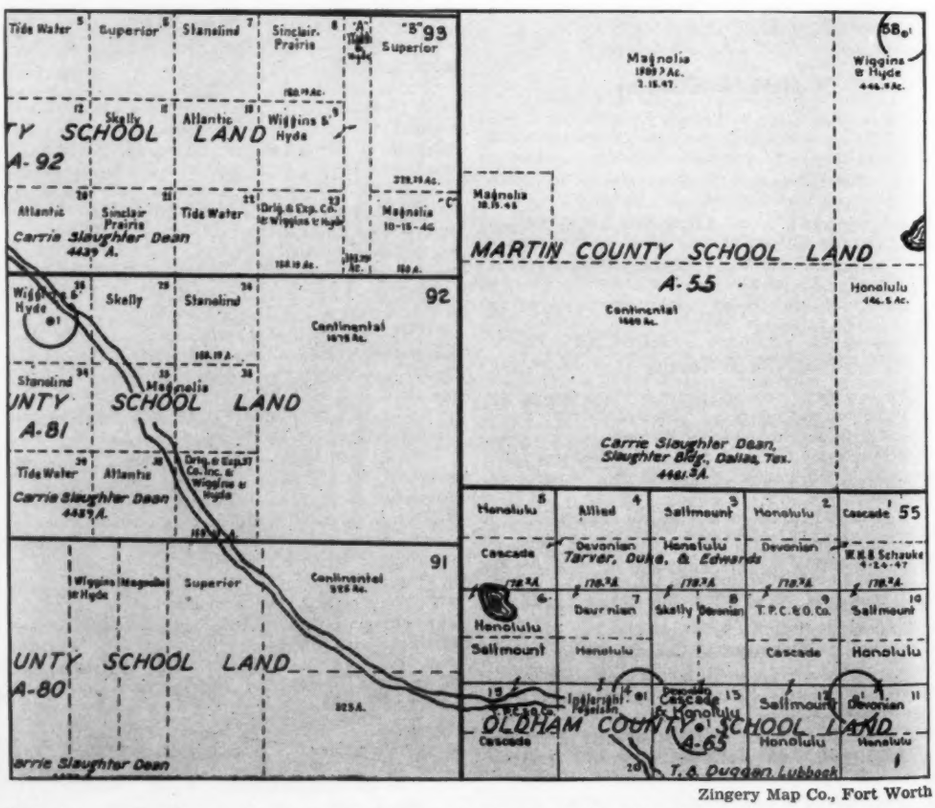
New Tests

The Barnett Petroleum Corp. of Dallas is preparing to sink a 2,000-foot wildcat on the J. E. Mims Ranch, in section 39, Block W, D. & S.E. Survey, on a 9,215-acre block in the western part of Coke County. This location is in the vicinity of two previously drilled dry holes, one being located in section 47 and having a showing of oil at around 1,665 feet.

Walter Gant of Ardmore, Oklahoma, has taken a block of six sections in the southern part of Stonewall County and has let contract for a 2,800-foot wildcat test. Location is in the northeast quarter of section 165, Block 1, H. & T.C. Survey, about 7 miles west of the General Crude Oil Co. No. 1 Bryan, which has been testing a showing of oil at 3,507-37 feet.

Crane-Upton Extension

The Homestead Oil and Gas Co. of Texas has extended the old Zoch-Hughes producing area on the Crane-Upton County line, north of McCamey, about 1½ miles farther to the east, by its No. 1 B. W. Owens, in section 93, Block Y, G.C. & S.F. Survey in Upton County. It topped the pay at 2,810-25 feet and was completed at a total depth of 2,830 feet after acidizing with 2,000 gallons. It pumped 136 bbls. in 24 hours. The company has



Zingery Map Co., Fort Worth

Wiggins and others outpost test in Lipscomb County School Lands approximately 4 miles northwest of the Duggan pool in southeastern Cochran County, which will either open a new pool or prove a big extension to the first pool

staked location for another outpost three-quarters of a mile farther northeast.

Jones Activities

Since the Avoca discovery of the Iron Mountain Oil Co. in northeastern Jones County a couple of months ago, many blocks have been taken in the northern part of Jones County and some in Haskell and Shackelford counties, and a number of 3,500- to 4,000-foot tests have been started in the newly opened sector. New tests are being reported each week and this week another batch of locations or proposed tests are mentioned. Among the new tests is that of Roeser-Pendleton, Inc., on the E. W. Rosenquist farm in the SE cor. of the NW quarter of section 181, B.B.B.&C. Survey, about 2½ miles north of the Avoca discovery well.

Seven and a half miles southwest of Stamford, Stanton & Miller are preparing to drill a 4,000-foot test on the Gaither Brothers lands in section 38, B.B.B.&C. Survey. Three miles southeast of the same city, Pioneer Oil Co. is to drill a 3,500-foot hole for the Panhandle Refining Co. on the Ben Ray farm in section 7, D.&D. Asylum lands.

Another outpost in the Avoca area is that of the States Exploration Co. on the Olson farm, in the NW cor. of the SW quarter of section 182, B.B.B.&C. Survey, about 3 miles north and a little west of the Avoca discovery. One and a half miles southeast of Avoca and 3 miles southwest of the discovery, Tillman & Adams are preparing to drill in the SW quarter of section 200, B.B.B.&C. Survey.

A test in the vicinity of Stamford is R. B. Farris No. 1 on the Nowlin farm in section 3, B.B.B.&C. Survey, about 2 miles east of that city. Ungren & Frazier of Abilene have the contract to drill the test. Grisham & Hunter of Abilene have assembled a block of 4,000 acres about 5 miles southwest of Stamford, and a test is expected to be drilled on the E. D. Appling farm in the SW quarter of section 32, B.B.B.&C. Survey. It will go to around 3,500 feet of the Canyon pay horizon found in the Avoca pool. Fain-McGaha, Inc., are spudding No. 1 W. F. Bean, 5 miles south of Stamford, the most active wildcatting area in Jones County except the area within a radius of 5 miles of Avoca.

West Central and North Texas

The recent strike of Hickey and others on the W. M. Martin farm, which extended production 1½ miles east of the old Desdemona field in Erath and Comanche counties, is being put on the pump and is estimated good for 100 to 125 bbls. per day at total depth of 2,877 feet, the pay having been topped at 2,865 feet.

Rotan Extension

The recently discovered high-gravity producing field 2½ miles east of Rotan in Fisher County was given an extension of one-half mile to the east this week by the Tide Water Associated Oil Co. No. 1 B. A. Waddell in section 173, Block 2, H.&T.C. Survey. It is shut down at 3,496 feet and has been tubed preparatory to making a Railroad Commission test. It flowed an estimated 150 to 200 bbls. of oil per hour through casing before being shut in to run tubing.

Abandonment

A wildcat which drew attention during the past couple of months when it was reported to have had a good showing of oil is that of C. A. Lupton and others on the Brite lands, in section 2,882, T.E.&L. Survey, Montague County, southwest of Bowie. It was given up as dry at 4,472 feet.

Deepening

The Grayson County discovery of the Denver Producing & Refining Co. on the Cannon lands, in the Elizabeth Barnes Survey, about 2½ miles northwest of Whitesboro, which a couple of months ago was completed making around 100 bbls. of oil per day with a considerable amount of salt water, is now being deepened from total depth of 2,397 feet. It will go to the contract depth of 4,000 feet in the hope of picking up the pay horizon found in the lone producer of the Big Indian Development Co. on the B. W. Davis farm, about 4 miles to the west. If it does not find oil in the deeper horizon it will be plugged back and produced from the 9 feet of sand logged from 2,388-2,397 feet. It was the second discovery well for Grayson County; the first, that of the same company, located about 1 mile east of the town of Collinsville in the southwestern part of the county, was a small pumper.

WEST TEXAS COMPLETIONS

Andrews County

J. W. Tripplehorn No. 1 J. Brown, 4,227-4,440 feet, plugged back to 4,426 feet, shot, 12 bbls. per day. Humble Oil & Refining Co. No. 27 Means, 4,500-25 feet, acidized, 698 bbls. on pump. Peters and others No. 1 Riordan, dry and abandoned 5,013 feet. Blanchard & Porter No. 1 Cox Estate, dry and abandoned 4,800 feet.

Humble Oil & Rfg. Co. No. 28 J. S. Means, 4,490-4,522 feet, 542 bbls.

Crane County

Edwards and others No. 2-A Sapp, 2,068-85 feet, plugged back to 2,078 feet, acidized, 830 bbls. on pump. Enniscrane Oil Co. No. 3-D Hughes, 2,000-2,104 feet, acidized, 679 bbls. on pump. Fields and others No. 11 Gibbs, 2,278-2,284 feet, acidized, 779 bbls. on pump; No. 10 Gibbs, 2,256-67 feet, acidized, 763 bbls. on pump. Gulf Oil Corp. No. 5 Waddell and others, 5,753-5,971 feet, 2,195 bbls.; No. 8 Tubbs, 4,275-4,425 feet, shot and acidized, 69 bbls. in six hours; No. 9 Tubbs, 4,300-4,422 feet, acidized, 454 bbls. Humble Oil & Refining Co. No. 11 Tubbs, 4,305-4,425 feet, acidized, 806 bbls. Snowden & McSweeney No. 1 University, 3,537-87 feet, acidized, 803 bbls.

Continental Oil Co. No. 7-D Hughes, 2,376-2,416 feet, acidized, 37 bbls. on pump. Gulf Oil Corp. No. 156 McElroy, 2,735-2,955 feet, 328 bbls.

Crockett County

R. H. Henderson's No. 1 C. B. Haun and others, dry and abandoned 1,303 feet.

Eppenauer Drilling Co. No. 1-B Powell, 2,602-45 feet, 287 bbls. oil and 80 bbls. water, acidized.

Ector County

Humble Oil & Refining Co. No. 2-B Scharbauer, 4,191-4,267 feet, acidized, 1,422 bbls. Atlantic Refining Co. No. 6-A TXL Rumsey, 4,155-4,264 feet, acidized, 1,423 bbls.; No. 2-E Cummins, 4,150-4,250 feet, acidized, 528 bbls.; No. 3-B TXL Rumsey, 4,180-4,289 feet, acidized, 143 bbls. Dunning No. 7 Scharbauer, 4,165-4,218 feet, acidized, 1,133 bbls. Landreth Oil Corp. No. 4-H Schar-

NATURAL GAS

Mankind's Versatile Servant

Steadily Extends its Usefulness

TO DESCRIBE in detail the functions performed by natural gas would require an entire issue of this publication. Even then the story would be incomplete.

★

Dependable, economical, instantly and continuously available — no wonder natural gas is finding an ever widening sphere of usefulness: *in the home* for heating, cooking and refrigeration; *industrially* in manufacturing, refining, conditioning and converting processes.

★

From Nature's mighty gas reserves this fuel of myriad uses is delivered in an unfailing supply. Costly transmission lines, compressor stations, intricate regulating and gauging devices — backed by twenty-four hour daily vigilance — make this possible. Yet the cost of natural gas to the consumer, now as in the past, is surprisingly moderate, judged by any conceivable standard of value.

★

Recent developments in the long-distance transportation of natural gas will mean a still greater consumption, as industrial and residential markets respond to increased distributing facilities . . . As this transpires, cities, towns and villages, heretofore deprived of this ideal fuel, well may anticipate the coming of the mains, much as our ancestors, generations ago, looked to the coming of the rails.

COLUMBIA SYSTEM

COLUMBIA GAS & ELECTRIC CORPORATION

bauer, 4,145-4,222 feet, acidized, 2,616 bbls. No. 7-G Scharbauer, 4,165-4,215 feet, acidized, 1,202 bbls. General Crude Oil Co. No. 1 Cummins, 4,160-4,235 feet, shot, 453 bbls. Shell Petroleum Corp. No. 2-A Cummins, 4,200-52 feet, acidized, 643 bbls.; No. 4-A TXL, 4,183-4,272 feet, acidized and shot, 536 bbls. Phillips Petroleum Co. No. 2 Pure-Cowden, dry and abandoned 4,321 feet. Nysenwander and others No. 4 Scharbauer, 4,155-96 feet, acidized, 1,277 bbls. Eppenauer No. 2-C Kloh, 4,073-4,215 feet, shot, 341 bbls.

Atlantic Rfg. Co. No. 3-E Cummins, 4,150-4,250 feet, 165 bbls., shot and acidized. A. G. Carter No. 5 Johnson, 4,090-4,200 feet, acidized, 792 bbls. Continental Oil Co. No. B-35-3 Rumsey, 4,170-4,285 feet, acidized, 283 bbls. W. H. Dunning Jr. No. 8 Scharbauer, 4,169-4,227 feet, acidized, 1,224 bbls. Gulf Oil Corp. No. 37 Goldsmith, 4,170-4,217 feet, acidized, 2,672 bbls. Honolulu and Black No. 2-B Cowden, 4,100-4,310 feet, shot, 320 bbls. Landreth Oil Corp. No. 4-E Scharbauer, 4,150-4,210 feet, acidized, 1,491 bbls.; No. 6-D Scharbauer, 4,180-4,230 feet, acidized, 2,572 bbls.; No. 8-B Scharbauer, 4,130-88 feet, acidized, 3,026 bbls.; No. 3-B Cummins, 4,063-4,227 feet, shot and acidized, 309 bbls.

When a Well Won't Flow!

Nineteen years ago we decided to devote the rest of our lives to the problems of production men with wells that wouldn't flow.

So we've had plenty of interested co-operation in the development of JENSEN Pumping Equipment.

If you have a well that must go on the pump, you owe it to yourself to find out what we've found out in the last 19 years.

JENSEN

BROTHERS MANUFACTURING COMPANY

Coffeyville, Kansas

Stanolind Oil & Gas Co. No. 2 Witcher, 3,990-4,190 feet, shot, 918 bbls.

Fisher County

Lewis Production Co. No. 1 Morrow, 3,544-49 feet, 1,652 bbls. Southern Oil Corp. No. 1 Robinson, 3,515-17 feet, 2,185 bbls., 41.7 gravity.

Gaines County

Amon G. Carter and others No. 1 M. Langdon, 4,894-4,995 feet, acidized, 422 bbls. Carter No. 2 Sharp, 4,947-5,000 feet, acidized, 1,172 bbls.

Amerada Petroleum Corp. No. 1 First State Bank of Seagraves, dry and abandoned, 2,140 feet. Argo Royalty Co. No. 1 Jones, dry and abandoned, 5,296 feet, elevation, 3,669 feet.

Glasscock County

Continental Oil Co. No. 37-S Settles, 1,283 feet, plugged back to 1,314 feet, shot, 45 bbls. on pump.

Continental Oil Co. No. B-1-S Settles, dry and abandoned, 1,316 bbls. Moore Brothers No. 4-H-16 McDowell, 2,203-50 feet, shot, 223 bbls. on pump.

Howard County

Moore Brothers No. 2 Texas Pacific Land Trust, 2,645-2,935 feet, shot, 631 bbls. on pump; No. 1 M. Quinn, dry and abandoned 3,515 feet, elevation 2,444 feet. Sinclair Prairie Oil Co. No. 8-B Davis, 2,480-2,825 feet, shot, 971 bbls. Superior Oil Co. No. 38-B D. Roberts, 1,307-65 feet, 412 bbls. on pump. Illinois Oil Co. No. 8-B Davis, 2,427-2,784 feet, shot, 871 bbls. O. M. Murray No. 7-A Davis, 2,647-2,837 feet, shot, 523 bbls. Shasta Oil Co. No. 11 Dodge, 2,450-2,760 feet, shot, 855 bbls.

Eastland Oil Co. No. 1 D. H. Snyder, 2,640-2,960 feet, 451 bbls. on pump, shot. Moore Brothers No. 1 J. B. Harding, 3,194-3,517 feet, plugged back to 3,460 feet, shot and acidized, 213 bbls. oil, and 20 bbls. water.

Loving County

R. A. Westbrook No. 1 Kyle, 3,945-80 feet, shot, 572 bbls.

Pecos County

M. H. Black and others No. 4 Pecos Valley, 1,543-1,610 feet, plugged back to 1,565 feet, shot, 130 bbls. on pump. Cardinal Oil Co. No. 13-A Smith, 340-98 feet, 17 bbls. oil and 10 bbls. water. Glenn J. Smith No. 1 Smith, dry and abandoned 2,692 feet. E. G. Gray and others No. 1 Iowa Realty Co., dry and abandoned 1,678 feet, shot. C. W. Fowler and others No. 1 Netterville, 2,202-2,312 feet, shot, 419 bbls. Marion Oil & Gas Co. No. 5 Courtney, dry and abandoned 1,378 feet. E. M. Thomasson No. 4 Pecos Valley, 1,522-1,632 feet, shot, 225 bbls. on pump. B. C. Mann No. 2 University, 1,646-49 feet, acidized, 265 bbls. oil and 40 bbls. water. Ohio Oil Co. No. 10 Turner fee, 1,360-1,526 feet, 1,977 bbls. per hour. Humble Oil & Refining Co. No. 14-A Smith, 1,490 feet, 135 bbls. per hour. Tex-Mex Oil Co. No. 1 Sue Williams, dry and abandoned 2,345 feet.

Cardinal Oil Co. No. 15-A Smith 337-355 feet, 18 bbls. on pump.

Runnels County

Price & Kramer No. 1 Gieseke Ranch, dry and abandoned 2,503 feet.

Upton County

Basin Oil Properties No. 2-A Baker, 2,158-2,289 feet, acidized, 1,181 bbls. on pump. Cardinal Oil Co. No. 5-A Cordova Union, 2,215-2,309 feet, acidized, 274 bbls., 20 per cent water, on pump. Homestead Oil Co. No. 6 Hughes, 2,660-2,745 feet, acidized, 674 bbls. on pump. Rodman & Eastman No. 1-B Hughes, 2,163-2,219 feet, acidized, 429 bbls. on pump. Stanolind Oil & Gas Co. No. 45 Burleson, 2,260-2,335 feet, acidized, 98 bbls. on pump. Simpson-White and others No. 1 Cordova Union, dry and abandoned 2,400 feet. Ulmer and others No. 3 Burleson, 2,200-52 feet, acidized, 270 bbls. on pump. Gulf Oil Corp. No. 3-C Lane, 2,252 feet, acidized, 88 bbls. per day, 45 per cent water; No. 154 McElroy, 2,590-2,815 feet, shot, 349 bbls. J. K. Hughes No. 2 Elder, 2,399-2,403 feet, acidized, 850 bbls. on pump. B. C. Mann No. 2 Hughes, 2,218-74 feet, acidized, 898 bbls. on pump. Humble Oil & Refining Co. No. 4-B Ricker, 2,585-2,685 feet, acidized, 303 bbls. on pump.

Atlantic Rfg. Co. No. 5 Sherk, 2,443-2,510 feet, shot and acidized, 452 bbls. Chate & Hogan No. 3 Baker, 2,353-81 feet, acidized, 948 bbls. on pump. Continental Oil Co. No. 12 Reese, 2,383-2,400 feet, acidized, 353 bbls. on pump. Gulf Oil Corp. No. 12 Sherk, 2,238-2,350 feet, acidized, 720 bbls. oil 20 per cent water on pump. Homestead Oil & Gas Co. No. 1 B. W. Owen, 2,551-2,831 feet, 136 bbls. on pump. Richardson Oils Inc. No. 1 Harland, 2,063-2,158 feet, acidized, 236 bbls. G. J. Smith No. 3 Burleson, 2,120-65 feet, acidized, 747 bbls. on pump. Snowden & McSweeney No. 8 Hughes, 2,370-2,413 feet, pushed back to 2,405 feet, acidized, 317 bbls. on pump.

Ward County

Cullum Alexander No. 1 McDonald, 2,233-2,342 feet, shot, 232 bbls., 10 bbls. water on pump. Cities Service Oil Co. No. 18 McDonald, 2,225-2,440 feet, shot, 680 bbls. Carl Schloet No. 1 Gus Bergner, 2,185-2,239 feet, shot, 240 bbls. Ice & Luce No. 2 Baker, 2,590 feet, 36 bbls. on pump. Gulf Oil Corp. No. 43 Estes, 2,450-2,680 feet, shot, 1,457 bbls. on three-sixteenths inch choke; No. 40 Estes, 2,787-2,940 feet, shot, 1,016 bbls.; No. 44 Estes, 2,473-2,703 feet, shot, 2,339 bbls. Standard of Texas No. 41 Gordon, 2,410-2,525 feet, shot, 250 bbls.; No. 17 McFarland, 2,570-2,670 feet, shot, 412 bbls. Sun and Atlantic No. 1 Johnson, 2,503-2,650 feet, shot, 360 bbls. Eppenauer No. 6 Stanolind-University, 2,525-2,717 feet, shot, 122 bbls. Fullerton Oil Co. No. 1 Sealy Estate, dry and abatndoned 4,005 feet. Tide Water Associated Oil Co. No. 39 Johnson, 2,847-3,000 feet, shot, 2,139 bbls.

Black and Hedrick No. 3 Snelson, 2,141-2,229 feet, 49 bbls. Gulf Oil Corp. No. 50 Estes, 2,478-2,690 feet, shot, 839 bbls. Humble Oil & Rfg. Co. No. 16-F University, 2,542,2,751 feet, shot, 889 bbls. Texas Pacific Coal & Oil Co. No. 10 Barker, 2,289-2,407 feet, shot, 379 bbls. Harry Adams and others No. 10-A Walton, 3,028-84 feet, shot, 1,487 bbls. Champlin & Bass No. 9 Hess, 3,050-75 feet, 1,537 bbls. Emperior Oil Co. No. 5 Hess, 3,010-70 feet, 973 bbls. Bert Fields No. 2-A Cowden, 2,810-3,000 feet, shot, 1,900 bbls. Gulf Oil Corp. No. 15 Clapp, 2,940-3,113 feet, shot, 1,206 bbls. Humble Oil & Rfg. Co. No. 28-A Colby, 2,810-3,110 feet, shot, 958 bbls. Illinois Oil Co. No. 13-A Central State Bank of Abilene, 2,782-3,090 feet, shot, 1,265 bbls.; No. 1-E Scharbauer, 2,875-3,410 feet, plugged back to 3,131 feet, acidized, 5 bbls. J. C. Maxwell No. 5 Gartex, 2,782-3,090 feet, shot, 1,993 bbls. Sinclair Prairie Oil Co. No. 3-B Vaden, 2,969-3,065 feet, shot, 417 bbls. Texas Pacific Coal & Oil Co. No. 1 Vaden, 2,700-3,051 feet, shot, 193 bbls.

Winkler County

Adams-Hitchcock No. 9-A Walton, 2,783-2,816 feet, 913 bbls. Atlantic Refining Co. No. 2-C Leck, 2,996-3,090 feet, 1,252 bbls. Bert Field No. 4-B Pure Cowden, 2,847-3,000 feet, shot, 2,139 bbls. Eastland Oil Co. No. 8 Pure-Clapp, 2,825-3,170 feet, shot, 620 bbls. Champlin & Bass No. 5 Hess, 3,045-75 feet, 1,494 bbls. Cities Service Oil Co. No. 6-E Daugherty, 2,930-3,050 feet, acidized, 1,885 bbls. A. G. Carter No. 12 Walton, 3,306-63 feet, shot, 210 bbls. Champlin No. 2 Cowden, 2,725-2,925 feet, shot, 147 bbls. Humble Oil & Refining Co. No. 3 McCutcheon, 2,755-3,020 feet, shot, 437 bbls. through 1½-inch choke; No. 22-A Colby, 2,795-3,115 feet, shot, 452 bbls. Herbert Oil Co. No. 4 Hendrick, 2,780-3,155 feet, shot, 611 bbls. Illinois Oil Co. No. 12-A Central State Bank of Abilene, 2,804-3,100 feet, shot. Gulf Oil Corp. No. 55 Daugherty, 2,810-3,020 feet, shot, 906 bbls.; No. 53 Daugherty, 2,812-3,163 feet, shot, 160 bbls. W. Little No. 2 Walton, 3,307-94 feet, shot, 364 bbls. Magnolia Petroleum Co. No. 92 Walton, 3,258 feet, plugged back to 3,100 feet, 47,500,000 feet of gas; No. 96 Walton, 3,309 feet, plugged back to 3,288 feet, shot, 50 bbls.; No. 94 Walton, 2,780-2,975 feet, shot, plugged back to 2,900 feet, 476 bbls. Navarro Oil Co. No. 2-B Humble-Walton, 3,288-3,401 feet, shot, 231 bbls.; No. 1 Ray Clapp, 2,802-3,050 feet, shot, 1,475 feet. Skelly Oil Co. No. 8 Colby, 2,825-3,110 feet, shot, 1,218 bbls. through three-eighths inch choke; No. 1-B Leck, 2,900-3,084 feet, acidized, 2,692 bbls. through three-quarters inch choke. W. H. and W. D. Wilson No. 1-C Campbell, 3,095-3,290 feet, shot, 200 bbls. Weaver and others No. 4 Morton, dry and abandoned 3,037 feet. Olsen Oil Co. No. 2 Hendrick, 3,044 feet, 1,600 bbls. through 1½-inch choke.

Yoakum County

Honolulu Oil Corp. and others No. 1 Bennett, 5,218-79 feet, acidized, 548 bbls.

PANHANDLE COMPLETIONS

Gray County

Cities Service Co. No. 1 Hoerner, 2,832-3,254 feet, plugged back to 2,885 feet, 7,300,000 feet gas. Dye and others No. 5 Holmes, 3,151-3,284 feet, shot, 599 bbls. on pump. Kewanee Oil & Gas Co. No. 13 Morgan,

(Continued on Page 278)

RED BALL CUTTING SERVICE

Don't Fish▲▲▲
Cut it Out!

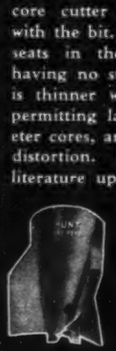
and you'll be back drilling in a clean hole quicker, and with less cost than by any other method of combatting stuck drill pipe.

J. S. Abercrombie Co.
21st FLOOR GULF BLDG.
HOUSTON - TEXAS

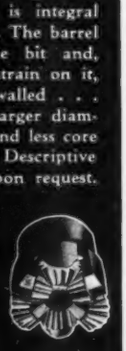
Standco
NO-SMOKE
STANDCO BRAKE LINING
is the driller's best friend because it makes the easiest brake known and "feeds off" evenly while drilling. It never scores brake rims. See page 1636, Composite Catalog.
STANDARD BRAKE LINING CO.

BIGGER, BETTER
CORES
with the
HUNT
WIRE LINE BARREL

Users of this modern retractable barrel get more and better core per dollar cost than by any other method of wire line coring. The core cutter is integral with the bit. The barrel seats in the bit and, having no strain on it, is thinner walled . . . permitting larger diameter cores, and less core distortion. Descriptive literature upon request.



Soft formation core head



Hard formation core head

HUNT TOOL COMPANY
HOUSTON, TEXAS
Patented, AUTHORIZED APPLEMAN BIT SERVICE CO.
HUNT WIRE LINE CORE BARRELS

BIT SERVICE SHOPS:
Houston, Jeanerville, Talco, Corpus Christi, Bay City, Alvin, Texas . . . . . Rodessa, Jennings, Houma, Louisiana.

Among Gulf Coast Drilling Contractors

Nicklos Drilling Co. was scheduled to make a production test of Continental Oil Co. No. 1 Tate, located on the Villa Platte Prospect in northern Acadia Parish. Bottomed at 9,098 feet with 7-inch casing cemented on bottom, a test will be made of a 60-foot section of broken sand and shale showing oil that is reported to have shown favorably on a Schlumberger survey. This is the deepest test drilled in the northern tier of counties generally referred to as the Conroe trend, and the outcome of the well is expected to revive drilling operations, since the hole is bottomed in the Cook Mountain horizon which heretofore has never produced in the district. This is the same producing horizon that is productive in the Spurger field of Tyler County which has already set off an active drilling campaign on the Texas side of the Gulf Coast. One completion was marked up for the same company at Tepetate, in Louisiana, and drilling operations continue at Valentine for the Pan American Production Co. with three rigs.

Edwards Drilling Co. has opened a new field in Galveston County for Maco Stewart by the completion of No. 1 fee, on the Hitchcock Prospect. The well flowed an initial production of 10 bbls. of pipe line oil per hour through a quarter-inch choke from a total depth of 5,156 feet. A completion test was being made in the Amelia field in Jefferson County for Humble Oil & Refining Co. Other Edwards Drilling Co. rotaries are located at Lockridge for the Kirby Petroleum Co., one at Hastings for Stanolind Oil & Gas Co., two at Dickinson for Kenben and Turman Oil Co., and one in the Hardin field in Liberty County for Woodley Petroleum Co.

George Echols is expected to skid over for a third test for Sinclair Prairie Oil Co. in the Heyser field where he has recently completed several good producers for himself. This field has been revived by deeper-sand discoveries in Victoria County and the past week saw the opening of a third sand by Normandie Oil Co. No. 3 Cook. The well was completed through perforated casing at 5,583-93 feet, and it flowed 720 bbls. per day through a three-eighths inch choke, making it the largest producer completed. Al Buchanan of San Antonio and Blanco Oil Co. have rigged up for No. 1 R. B. Morris, offsetting the Normandie Oil Co. producer to the northeast.

Smith & McDannald have opened a shallow sand at the Charenton field in St. Mary Parish by the completion of Pan American Production Co. No. 1 Veeder-Hunt which flowed 10 bbls. per hour through a quarter-inch choke from perforations around 3,500 feet. No. 1-B Smedes at St. Martinsville, in Louisiana, has been spudded for the Tide Water Oil Co. Other operations are centered in the Dickinson field and Louise field for Pure Oil Co., one in Arkansas and Long Lake field for Tide Water Associated Oil Co. and others and at the South Houston and Hastings fields for Stanolind Oil & Gas Co.

Jay Simmons No. 1 Alexander drilled by A. A. Cameron, extended the Hastings field, Brazoria County, one-half mile north, when it flowed 10 bbls. per hour through a quarter-inch choke from a total depth of 6,060 feet. The well is credited with having cored an unusually large and thick sand body which is expected to extend production much farther north. With a total of 28 rigs running the field is the most active on the Gulf Coast and is being developed (with the exception of several rigs operated by Humble Oil & Refining Co.) by Gulf Coast drilling contractors. It is still undefined in many directions and the present drilling campaign is expected to last for several months.

W. V. Bowles is preparing to make a production test on two of the Texas Co. tests in the old Hull field in Liberty County, which field has been revived by deeper sand discoveries. No. 8 Hannah fee is bottomed at 4,975 feet, with 7-inch casing cemented at 4,974 feet, while No. 9 Hannah fee is bottomed at 4,795 feet with 7-inch casing cemented at 4,728 feet. New contracts will no doubt be let as soon as these wells are completed. In the Ganado field, for the same company, No. 1 Niebuhr is drilling below 6,400 feet and should reach the pay by the end of the week.

Cron & Gracey made a production test of Barnsdall Oil Co.'s interesting wildcat at Rockport in Aransas County and is plugging back for another test after it showed salt water. Drilling continues in Lake Long for Fohs Oil Co., and contract has been received from Shell Petroleum Corp. for another test at Tomball. Other operations are reported by the firm in the Dickinson, Flour Bluff, Hastings and West Hackberry fields for Humble Oil & Refining Co. and the Stanolind Oil & Gas Co.

Thompson Drilling Co. is moving in a rig to Tyler County for a wildcat test northeast of Rockland which will probably be drilled to the Cockfield or Cook Mountain horizons.

Rhodes Drilling Co. is scheduled to make a production test at Jennings in Acadia Parish for M. P. Omeara's No. 1 McFarlain, which is standing cemented at a total depth of 6,909 feet. This rig will be moved over for the same operator's No. 1 Moresi, while another rig is being moved to the West Hackberry field in Cameron Parish for No. 1 Rigmaden heirs, another flank test which will probably be drilled below 4,900 feet.

REED'S
'B-R'
DRILLING BIT WITH
WIRE LINE RETRACTABLE
CORE BARREL

REED 'B-R'
Drill Collar and 3-Blade Drilling Bit with Core Barrel in position

HARD FORMATION HEAD
(INTERCHANGEABLE WITH SOFT FORMATION HEAD)

REED
ROLLER BIT CO.

REGAN TUBING BLOCKS

Single Double or Three Sheave

17½, 35 and 50 Tons

CAPACITIES
Single Sheave—17½ Tons
Double Sheave—35 Tons
Three Sheave—50 Tons

Regan Tubing Blocks are built to the same principles of design and quality of workmanship and materials as offered in Regan Types 3-B and 6-A Traveling Blocks. Made in two models. Model 1, heavy construction with streamlined cast steel guards. Model 2, lighter construction with fabricated plate guards. Sizes are 54-62 in both models. All equipped with roller bearings and chrome alloy steel sheaves.

Ask For Bulletin

Regan
Forge & Engineering Co.
Plant and General Offices
San Pedro, Cal.
P. O. Box 150
Mid-Continent Office—1502 Maury St., Houston. Okla.—Mid-Co Tool & Supply Co., Okla. City. Kansas Rep.—Bovaird Supply Co., Wichita. N. Y. C. Office—17 Battery, G. R. Woods, Mgr.

Rocky Mountain Area

By
T. R. INGRAM

LANCE CREEK, WYOMING, HAS BIG WELL IN THE MINNELUSA

DENVER, Colo., Sept. 13.—Approval of the act of congress by the president giving the government a monopoly on helium may have important effect in the Rocky Mountain area where some of the richest helium-bearing gasses have been found.

Colorado had one new operation in Archuleta County and two old wells resuming in Jackson and Lincoln counties, and no completions.

Murphy Oil Co. No. 8 Holst, in the Quealy field, Wyoming, made 15 bbls. per hour from the Dakota. Ohio Oil Co. has a 225-bbl. well in its No. 2 Baker-Byron in the Byron field. Another big well in the Minnelusa was completed in Lance Creek in Ohio Oil Co. No. 10 Lamb, which made 1,666 bbls. in 22 hours. Carter Oil Co. deep test at Billy Creek drilled to the Ordovician and is being abandoned. Stanolind Oil & Gas Co. Tensleep well in Salt Creek made 211 bbls. through a one-eighth inch bean after plugging off bottom water. Wyoming Oil & Refining Co. No. 9 Government, on Hidden dome, made 68 bbls. initially.

There were no completions or new operations in the Cut Bank field in Montana. Kevin-Sunburst had four completions, of which two were dry holes, and five new operations.

NEW MEXICO

The third producer in the Alexander area east of Eunice in Lea County was completed at Continental Oil Co. and associates No. 1-A-5 Hawk, C NW SE section 5-21-37. It topped pay at 3,700 feet, was bottomed at 3,760 feet and flowed 119 bbls. of oil daily after a shot.

The week's completions in Lea County included two gassers. Stanolind Oil & Gas Co. No. 3-B Langlie, C SW SW section 14-25-37, Jal sand area, had pay at 3,094 feet, total depth 3,375 feet, and produced 14,250,000 feet of gas daily. Same operator's No. 1-B Myers, C NW NW section 7-24-37, northeast of Cooper, produced 5,783,000 feet of gas daily from sand topped at 3,295 feet, total depth 3,402 feet.

Continental Oil Co. No. 5-A-17 State, C SW NE section 17-19-37, found pay at 4,001 feet, total depth 4,027 feet, was acidized, flowed 49 bbls. of oil in nine and one-half hours, was shot and reacidized and flowed at the rate of 28 bbls. of oil an hour.

Stanolind Oil & Gas Co. No. 4-A Gilluly, C NW NE section 24-20-36, topped pay at 3,850 feet, total depth 3,875 feet, and flowed 10 bbls. of oil in four hours, with 1,047,000 feet of gas.

J. W. Brown and others No. 1 State, C SW SW section 22-21-34, was abandoned at 4,144 feet, total depth.

Other recent completions in Lea County. Texas Co. No. 1-B Keohane, section 18-19-27, total depth 4,025 feet, acidized, flowed 360 bbls. of oil in eight hours. It extended the Monument area one location to the northwest.

Tide Water Associated Oil Co. No. 2 State K, section 13-20-36, total depth 3,866 feet, acidized, flowed 54 bbls. of oil in one hour, with 1,500,000 feet of gas. Texas Co. No. 5 State C, C NE NE section 19-20-37, had pay at 3,740 feet, total depth 3,865 feet, was acidized and flowed 247 bbls. of oil in 24 hours. These are in the Monument area.

In the Mattix sector, Western Gas Co. No. 4 Harrison, C NW SW section 29-24-37, had pay at 3,360 feet, total depth 3,699 feet, was acidized and produced 6,000,000 feet of gas. Humble Oil & Refining Co. No. 2 Williams, C SE NW section 34-24-37, topped pay at 3,347 feet, was bottomed at 3,505 feet, shot and flowed 20 bbls. of oil an hour.

Skelly Oil Co. No. 2 H. O. Simms, section 4-23-37, in the Skelly or Simms area, had pay at 3,522 feet, total depth 3,668 feet, was shot and produced 87 bbls. of oil daily, with 4,000,000 feet of gas.

H. C. Wheeler and others No. 1 Cowden, SE cor. section 20-23-37, was reported as an abandoned location.

In Eddy County, Red Lake Oil Co. No. 9 State, SW SW NW section 22-17-28, was completed as a 15-bbl. pumper at 1,954 feet, total depth. Top of pay was 1,918 feet.

Other recent Eddy County completions: Flynn, Welch & Yates Oil Co. No. 5 Gissler, section 14-17-30, had oil pay at 2,867 feet, total depth 3,450 feet, was acidized and produced 170 bbls. of oil daily. Republic Production Co. No. 2 Robinson B, C NW NE section 27-17-29, was bottomed at 2,805 feet, was shot and produced 15 bbls. of oil daily. Neil H. Wills No. 1 Vickers, C NW SE section 23-20-28, wildcat, was dry and abandoned at 1,054 feet, total depth.

Lea County

Amerada Pet. Corp. No. 6 Byrd, SE sec. 12-20-36. Loc.
Amerada Pet. Corp. No. 3 Laughlin, C NW NE sec. 9-20-37. Drlg. 3,910 ft.
Amerada Pet. Corp. No. 2-G State, C NW SW sec. 18-19-37. Drlg. 1,264 ft.
Anderson-Prichard Oil Corp. No. 1 Wells, C SE SE sec. 5-25-37. Drlg. 3,575 ft.
Anderson-Prichard Oil Corp. No. 1 Gregory, NW sec. 33-25-37. Drlg. 2,974 ft.
Anderson-Prichard Oil Corp. No. 2 Langlie, SE sec. 8-25-37. T.D. 3,466 ft.; cementing off gas.
Anderson-Prichard Oil Corp. No. 1 Lanehart, SW sec. 21-25-37. T.D. 2,903 ft.; est. 25,000,000 ft. gas; trying to kill.
Atlantic Ref. Co. No. 2-P State, C NE NW sec. 25-20-36. Drlg. 3,418 ft.
E. G. Bradley No. 1 Lanehart, C SW NE sec. 28-25-37. T.D. 3,221 ft.; setting packer.
Bradley Oil Co. No. 1 Grizzell, C SW NE sec. 5-22-37. Loc.
Cities Service Oil Co. No. 6-A Clossen, C SW SE sec. 6-22-36. Drlg. 1,490 ft.
Cities Service Oil Co. No. 1-H State, C NE NE sec. 17-22-36. T.D. 3,680 ft.; set 7-in. csg.
Continental Oil Co. No. 7 Britt, C SW SE sec. 18-20-37. Drlg. 3,822 ft.
Continental Oil Co. No. 1-A-15 Cline, NW sec. 15-23-37. Wildcat; P.B. from 3,860 ft. to 3,672 ft.; pumping 3 to 5 bbls. oil daily.
Continental Oil Co. No. 2-A-15 Elliott, SE sec. 15-22-37. T.D. 3,675 ft.; resetting packer.
Continental Oil Co. No. 1 Jack, C NW NE sec. 27-34-37. Drlg. 3,500 ft.
Continental Oil Co. No. 1-A-30 Lockhart, NW sec. 30-21-36. Drlg. 2,790 ft.
Continental Oil Co. No. 2-B-31 Lockhart, C SE SW sec. 31-21-36. T.D. 3,775 ft.; set 5½-in. at 3,774 ft.
Continental Oil Co. No. 6 Lockhart, NE SE NW sec. 30-21-36. T.D. 294 ft.; set 10¾-in. csg. at 286 ft.
Continental Oil Co. No. 3-B-10 Sanderson, NE NE SE sec. 10-20-36. Drlg. 3,023 ft.
Continental Oil Co. No. 6-A-11 Sanderson, NE SW SW sec. 11-20-36. Drlg. 3,040 ft.
Continental Oil Co. No. 1-E-17 State, C SE SE sec. 17-22-36. T.D. 3,842 ft.; flowed 3 bbls. oil an hour.
Continental Oil Co. No. 1-A-30 Warren, C SE NW sec. 30-20-38. T.D. 1,400 ft.; set 7⅝-in. csg. 1,390 ft.
Crandall, Osmond & Maxwell et al No. 1 Maxwell Permit, C SE SE sec. 2-11-36. Drlg. 2,252 ft.
Cranfill & Germany No. 1 Weir, C NE NE sec. 15-20-37. T.D. 4,210 ft.; S.D.O.
Culbertson & Irwin No. 2-A Humphrey, NE NE NW sec. 3-25-37. Drlg. 700 ft.
Culbertson & Irwin No. 3-A Humphrey, NE SW NE sec. 3-25-37. T.D. 1,170 ft.; setting csg.
Culbertson & Irwin No. 2 Moseley, NE NW SW sec. 34-24-37. Drlg. 2,662 ft.
Emperor Oil Co. No. 1 Johns, C SW NW sec. 24-17-32 Drlg. 1,505 ft.
Empire Oil & Ref. Co. and Repollo Oil Co. No. 2 Brunson, NW sec. 3-22-37. Drlg. 3,250 ft.
Empire Oil & Ref. Co. No. 1 Parsons, C SE SE sec. 27-19-36. T.D. 4,002 ft.; flowed 94 bbls. oil daily; shut in.
Empire Oil & Ref. Co. No. 1-G State, sec. 2-21-36. T.D. 3,900 ft.; shut down.
Empire Oil & Ref. Co. No. 2-B State, C SE SW sec. 2-21-37. Drlg. 3,850 ft.
J. E. Farrell No. 2-B Walden, C NE SW sec. 15-22-37. T.D. 3,704 ft.; pulling tubing.
J. E. Farrell No. 2-C Walden, C SE SW sec. 15-22-37. Drlg. 3,665 ft.
Great Western Prod. Co. No. 1 Bordages, NW cor. sec. 33-19-37. Drlg. 2,988 ft.
Gulf Oil Corp. No. 2 Baker, SE sec. 5-22-37. T.D. 3,710 ft.; fishing.
Gulf Oil Corp. No. 1 Boyd, sec. 23-22-37. T.D. 3,681 ft.; testing.
Gulf Oil Corp. No. 2 Cole, C NE NE sec. 16-22-37. T.D. 1,141 ft.; shut down.
Gulf Oil Corp. No. 1 Elliott, SW SE SE sec. 15-25-37. Drlg. 3,380 ft.
Gulf Oil Corp. No. 2-H Graham, C SW SW sec. 13-20-36. T.D. 2,490 ft.; set 7⅝-in. csg. 2,483 ft.
Gulf Oil Corp. No. 1 Kyle, C SE SE sec. 7-19-37. Drlg. 1,468 ft.
Gulf Oil Corp. No. 1 Mattern G, C NE SE sec. 18-21-37. Coring 3,471 ft.
Gulf Oil Corp. No. 1 Monda, C SE SW sec. 21-22-37. T.D. 3,670 ft.; flowed 43 bbls. oil per day.
Gulf Oil Corp. No. 2 Reeves, C SE NW sec. 29-20-37. T.D. 3,840 ft.; shut in.
Gulf Oil Corp. No. 1 Stebbins, C SE NW sec. 5-22-37. T.D. 3,495 ft.; set 6-in. at 3,491 ft.
Gulf Oil Corp. No. 1 Stitcher, C SE SW sec. 4-22-37. Drlg. 3,115 ft.
Gulf Oil Corp. No. 2 Stuart, C SE NW sec. 10-25-37. T.D. 2,370 ft.; fsg.
Gulf Oil Corp. No. 1-B White, SE sec. 35-20-36. Derrick.
Herschback Drlg. Co. No. 1 Crutchfield, SW SE NE sec. 32-19-37. T.D. 3,909 ft.; acd.; 9 bbls. oil per hour.
Homestead No. 1 Clifford, SW sec. 12-26-32. Wildcat; drlg. 3,345 ft.
Humble O. & R. Co. No. 1 Fopeano, C SE SW sec. 25-20-36. Drlg. 3,185 ft.
Humble O. & R. Co. No. 2 Saunders, C NW NW sec. 9-22-34. Drlg. 3,550 ft.
Jal Nat. Gas Corp. No. 2 Justis, NE sec. 20-25-37. T.D. 3,029 ft.; testing.
Landreth Prod. Co. No. 4 Grizzell, C SW SW sec. 5-22-37. T.D. 3,450 ft.; set 7-in. csg.
Mack & Stauffer No. 2 Grizzell, C NE NE sec. 8-22-37. Drlg. 3,020 ft.
Magnolia Pet. Co. No. 4 Cary, C SW SW sec. 29-21-37. Drlg. 3,474 ft.
Magnolia Pet. Co. No. 1 Hardy, SW SW NW sec. 29-21-37. Drlg. 3,618 ft.
Magnolia Pet. Co. No. 1 State G, NW NW NE sec. 34-17-34. T.D. 4,905 ft.; P.B. 4,794 ft.
Magnolia Pet. Co. No. 2 State-Bridges, sec. 14-17-34. T.D. 4,468 ft.; bailing.
J. A. Mascho No. 1 Cloyd, C SE SE sec. 20-22-33. Wildcat; derrick.
McDonald & Weiner No. 1 Elliott, SE cor. sec. 19-21-37. Drlg. 2,000 ft.
Mid-Continent Pet. Corp. No. 4 Greer, C SW NW sec. 21-22-36. Drlg. 3,271 ft.
Murray et al No. 4 State Wallace, NW SW NW sec. 3-21-36. T.D. 3,840 ft.; shot and cleaning out.
National Drlg. & Prod. Co. No. 1 Flint, C NE NE sec. 29-20-34. Wildcat; drlg. 3,455 ft.
Ohio Oil Co. No. 2 Grizzell, C NW SE sec. 5-22-37. Drlg. 2,795 ft.
Ohio Oil Co. No. 1 Kutter D, C SW SW sec. 8-19-37. Drlg. 3,535 ft.
Ohio Oil Co. No. 7 State-McDonald, C SW SE sec. 16-22-36. T.D. 3,871 ft.; cleaning out.
Ohio Oil Co. No. 2 Turner, SW NW SE sec. 20-21-37. T.D. 3,792 ft.; drlg. by bit.
Phillips Pet. Co. No. 1 Lea, C NW NW sec. 30-17-34. Wildcat; T.D. 4,912 ft.; shut down.
Plains Prod. Co. No. 1 Humphreys, NE sec. 3-25-37. Loc.
Repollo Oil Co. No. 1 Carter, SW SE NE sec. 8-24-37. T.D. 2,758 ft.; fishing.
Repollo Oil Co. No. 3 Jamison, SW NE NE sec. 21-24-37. T.D. 3,565 ft.; cleaning out.
Repollo Oil Co. No. 4 Roach, NW NW SW sec. 21-20-37. Set 13-in. csg. 200 ft.
Repollo Oil Co. No. 1 Turner, sec. 29-21-37. T.D. 3,800 ft.; flowed 66 bbls. oil in 24 hrs.
Repollo Oil Co. No. 2 Moseley, NE SE SW sec. 34-24-37. Drlg. 2,460 ft.
Repollo Oil Co. No. 1 White, SE NE SE sec. 35-20-36. Drlg. 1,070 ft.
Rowan Drlg. Co. No. 1-A Elliott, SW sec. 27-22-37. T.D. 3,665 ft.; testing.
Rowan Drlg. Co. No. 1 Elliott B, C NE NW sec. 9-22-37. Drlg. 2,235 ft.
Rowan Drlg. Co. No. 2 Elliott B, C NW NW sec. 9-22-37. Drlg. 1,200 ft.
Rowan Drlg. Co. No. 2 Walden, C NE NW sec. 15-22-37. Derrick.
Samedan Oil Co. No. 3 Hughes, sec. 4-23-27. T.D. 3,631 ft.
Schermerhorn Oil Co. No. 2 Woolworth, sec. 29-24-37. Drlg. 3,515 ft.
Shell Pet. Corp. No. 3 Black, SE SE SW sec. 21-24-37. Drlg. 1,200 ft.
Shell Pet. Corp. No. 4-E State, C SW NW sec. 12-20-36. Drlg. 2,670 ft.
Shell Pet. Corp. No. 1-L State, NE NE SE sec. 1-21-33. T.D. 3,873 ft.; testing.
Skelly Oil Co. No. 1 Baker, C NW NW sec. 26-22-37. T.D. 3,705 ft.; cleaning out.
Skelly Oil Co. No. 5 J. B. Baker, C SE NW sec. 27-22-37. T.D. 3,620 ft.; cleaning out.
Skelly Oil Co. No. 1 Grizzell, C SW NE sec. 6-22-37. Drlg. 3,750 ft.
Skelly Oil Co. No. 1 Hill, C Lot 7, sec. 6-21-37. Drlg. 3,840 ft.
Skelly Oil Co. No. 3 E. Sims, C SE SE sec. 2-23-37. Drlg. 2,680 ft.
Skelly Oil Co. No. 3 G. W. Sims, C NW NE sec. 9-23-37. T.D. 3,642 ft.; cleaning out.
Skelly Oil Co. No. 4 G. W. Sims, C NW NW sec. 10-23-37. Drlg. 3,511 ft.
Skelly Oil Co. No. 1-C R. R. Sims, sec. 3-23-37. Drlg. 3,622 ft.
Skelly Oil Co. No. 6 R. R. Sims, C SW SW sec. 3-23-37. Drlg. 3,200 ft.
Skelly Oil Co. No. 1-E W. P. Sims, C SW NE sec. 10-23-37. T.D. 3,312 ft.; set 7-in. csg.
Southern Pet. Explo. Co. No. 1 Rinewalt, C NW NW sec. 4-22-37. Drlg. 3,220 ft.
Stanolind O. & G. Co. No. 26-A Farnsworth, C SE NW sec. 18-26-37. Drlg. 3,118 ft.
Stanolind O. & G. Co. No. 6-A Gilluly, C NE SW sec. 25-20-36. T.D. 3,854 ft.; acidized.
Stanolind O. & G. Co. No. 7 Gilluly A, C SW SE sec. 24-20-36. T.D. 3,760 ft.; set 7-in. 3,750 ft.
Stanolind O. & G. Co. No. 8 Gilluly A, C NW SE sec. 24-20-36. Derrick.
Stanolind O. & G. Co. No. 9-A Gilluly, C NE NW sec. 24-20-36. Cellar and pits.
Stanolind O. & G. Co. No. 2-B Langlie, C NW NW sec. 15-25-37. Drlg. 3,357 ft.
Stanolind O. & G. Co. No. 1 State, C SE SE sec. 2-21-36. Derrick.

Stanolind O. & G. Co. No. 2 State, C SW SE sec. 2-21-36. T.D. 3,834 ft.; F. 90 B.O. in 12 hrs.
W. H. Street No. 2 Wood, C SW NE sec. 22-22-37. C.O. at 3,383 ft.
Texas Co. No. 2 Weir, C SE SW sec. 23-19-36. T.D. 3,754 ft.; testing.
Texas Pacific C. & O. Co. No. 5-A State, sec. 19-22-36. T.D. 3,782 ft.; set 7-in. 3,759 ft.
Tide Water Oil Co. No. 4-J State, C NE NW sec. 17-19-37. T.D. 3,709 ft.; to kill gas.
Williams & Cockburn No. 3 Miller, C SW SW sec. 23-17-32. T.D. 3,880 ft.; waiting on tools.
Woodley Pet. Co. No. 2 Cooke, C SE SE sec. 28-25-37. Coring 3,254 ft.

Eddy County

F. E. Baker No. 1 Eddy, NE sec. 12-22-27. T.D. 55 ft.; shut down.
Fred Brainerd No. 2 Brainerd, sec. 5-18-27. Drlg. 1,283 ft.
Ed Bryant No. 1 Stebbins, C NE SW sec. 19-20-29. T.D. 738 ft.; S.D. for csg.
Carper Drlg. Co. No. 2 Geissler, SW SE NW sec. 23-17-30. Drlg. 1,270 ft.
Cities Service Oil Co. No. 1 State, CSL SW SE sec. 16-17-30. Drlg. 2,040 ft.
T. D. Collins No. 1 Weiler, C NW NW sec. 13-24-36. T.D. 1,970 ft.; P.B. 1,965 ft.; S.D.
Continental Oil Co. No. 1 Barret, SE sec. 14-20-30. Drlg. 1,912 ft.
Continental Oil Co. No. 1 Etz, C NW NE sec. 24-16-30. T.D. 3,113 ft.; S.D., repairs.
Emperor Oil Co. No. 3 Puckett, C NE NW sec. 24-17-31. Drlg. 2,100 ft.
Finley & Cherry No. 1 Buchley, C NW NW sec. 28-16-31. Wildcat; drlg. 910 ft.
Flint Prod. Co. No. 1-B State, SE sec. 20-17-30. Drlg. 3,800 ft.
Franklin Pet. Corp. No. 1 Nelson, NW sec. 4-18-30. Wildcat; T.D. 2,953 ft.; P.B. 2,906 ft.; shot; cleaning out.
C. J. Frederick No. 1 Reed, C NE SW sec. 28-24-28. T.D. 95 ft.; S.D., repairs.
F. W. & Y. Oil Co. No. 3 Jackson, C NW SE sec. 13-17-30. T.D. 2,953 ft.; fishing.
F. W. & Y. Oil Co. No. 4-A Jackson, NE sec. 13-17-30. Drlg. 3,100 ft.
F. W. & Y. Oil Co. No. 5-A Jackson, NE sec. 13-17-30. Rig.
F. W. & Y. Oil Co. No. 2-A Stevens, C NW SW sec. 13-17-30. T.D. 3,479 ft.; est. 140 B.O.P.D.
F. W. & Y. Oil Co. No. 3-A Stevens, NW sec. 13-17-30. T.D. 3,500 ft.; F. 120 B.O.P.D.
F. W. & Y. Oil Co. No. 4-A Stevens, C SW SW sec. 13-17-30. T.D. 2,295 ft.; drlg. out csg. at 1,800 ft.
F. W. & Y. Oil Co. No. 2-B Stevens, NW sec. 13-17-30. Rig.
Grayburg Oil Co. No. 8 Burch, SE SE NW sec. 19-17-30. Drlg. 1,027 ft.
R. L. Holcomb No. 1 State, NW sec. 22-17-28. T.D. 115 ft.; shut down.
H. & W. Drlg. Co. No. 1 Storey Permit, C NW SE sec. 31-19-30. Drlg. 1,640 ft.
Woodworth Hawkins No. 1 Mack, C SW SW sec. 20-24-27. T.D. 175 ft.; lost hole; drlg. 38 ft. in new hole.
C. F. Ingram No. 1 Page, NE NE SW sec. 15-21-28. T.D. 1,320 ft.; S.D.; high wtr.
Murchison & Closuit No. 1-C State, SW SE NE sec. 16-17-31. T.D. 3,749 ft.; P.B. 3,745 ft.; bailing.
W. A. Nichols No. 1 Johnson, NE sec. 35-16-21. Wildcat; drlg. 3,645 ft.
Premier Pet. Corp. No. 1-E Parker, sec. 22-17-30. Drlg. 2,105 ft.
Repollo Oil Co. No. 2-D McIntyre, NW NE SW sec. 20-17-30. Drlg. 2,775 ft.
Paul Sargent No. 1 State, NE sec. 16-17-31. Drlg. 3,292 ft.
R. A. Shugart No. 1 Cowethard, C NW SW sec. 35-18-31. Drlg. 2,305 ft.
W. O. Snyder No. 1 Pecos Irrigation, C NE SE sec. 15-25-28. T.D. 575 ft.; C.O. at 430 ft.
Superior Oil Co. No. 1 Foster, SE SE NE sec. 17-17-31. Drlg. 3,450 ft.
Tigner, Etz & Keyes No. 2-B Keyes, NW sec. 10-17-28. Drlg. 1,365 ft.
Weiner & McDowall No. 1 Kerr, C SE NW sec. 3-24-24. Drlg. 1,820 ft.
W. K. Royalty Co. No. 1 State, C SW NE sec. 16-17-31. Drlg. 2,370 ft.
Western Drlg. & Eng. Co. No. 1 Western, NW sec. 26-17-29. T.D. 2,685 ft.; set 6⅝-in. at 2,638 ft.
Western Gas Co. No. 1 Cagle, C NW NW sec. 8-26-30. T.D. 1,155 ft.; fishing.

Chaves County

English & Harmon No. 1 Billingslea, SE sec. 9-15-29. T.D. 3,545 ft.; P.B. 3,427 ft.; producing 1 B.O. dly.
Mathewson et al No. 1 McDonald, C NE NW sec. 19-14-27. Drlg. 207 ft.

Curry County

Bond & Harrison No. 1 Hart Ranch, C NW SE sec. 13-2n-31. Drlg. 2,337 ft.

Dona Ana County

Juels C. Bertrand No. 1 Casad Permit, sec. 24-26-5e. T.D. 47 ft.; S.D.O.

McKinley County

S. Dysart No. 1 Government, NE sec. 14-14-10w. T.D. 1,390 ft.; fishing.

Otero County

George Mulvey No. 1 State, SW cor. sec. 11-25-8. T.D. 263 ft.; shut down.
Fred Turner No. 1 Evans, NW NW SW sec. 22-14-12. O.W.D.D.; wildcat; T.D. 3,763 ft.; S.D.

Roosevelt County

C. S. Peterson and Conquistadores Oil Co. No. 1 Good, NW SE SE sec. 28-5s-30. Drlg. 235 ft.

NORTHWEST NEW MEXICO

Bernalillo County

Norins Realty Co., Inc., No. 2 North Albuquerque, NE SE NW sec. 19-11n-4e. Drlg. 3,600 ft.

San Juan County

Jack Amenda No. 4 Hart, NW NE SW sec. 25-30n-12w. Drlg. 1,995 ft.
Red Butte Oil Co. No. 1 Govt., C SW SW sec. 6-21n-13w. Drlg. 510 ft.
Anna Oil Corp. No. 6 Govt., SW NE NE sec. 33-30n-11w. S.D. 725 ft. for pipe.

Socorro County

Central New Mexico Oil Co. No. 1 Brown, SE NW sec. 16-3n-1e. Drlg. 300 ft.; rotary tools.

Valencia County

C. A. Brober et al No. 1 Fuqua, NE NE sec. 19-5n-3e. Drlg. below 700 ft.

COLORADO

Archuleta County

A new operation was reported in O. G. McDonald No. 1 Government, SW cor. section 12-33n-2e, which is located directly to the northwest of the producing wells in the William E. Hughes Estate No. 1 Gramps pool. The test is on the Lena M. Garnett permit comprising the W half SW section 1; NE section 11; W half section 12 and Lots 1 and 2, section 13. The Gramps pool is now shipping oil regularly to the Continental refinery at Denver.

O. G. McDonald No. 1 Government, SW SW SW sec. 12-33n-2e. Spdg.

Bent County

Indian Terr. Ill. Oil Co. and Olson Drlg. Co. No. 1 Arbes, C Lot 2, sec. 2-21-48w. Drlg. 5,240 ft. in Miss.

Boulder County

J. B. Furstenberg No. 1 Foote, SE sec. 20-1n-70w. Drlg. 2,200 ft.
Boulder Prod. & Dev. Co. No. 11 Harlow Est., SE NE sec. 36-2n-71w. S.D.O. 765 ft.; dry in Muddy.

Eagle County

Stanolind Oil & Gas Co. No. 1 Jenkinson, NW SW SW sec. 34-4s-85w. Drlg. 975 ft.

Fremont County

Utex Oil Co. No. 26, C SE SW sec. 20-20s-69w. S.D.O. 2,730 ft.; may abd.

Garfield County

Roaring Fork Oil Co. No. 1 Patterson, C NE sec. 36-7s-88w. Drlg. 452 ft. in blk. Penn. sh.

Kiowa County

Morgan & Flynn et al No. 1 Hostetter, C NW SE sec. 6-20s-46w. Crd. 4,917-28 ft. with 11 ft. rec.; top Chester form. at 4,925 ft.

Larimer County

Great West O. & G. Corp. No. 1 Haworth, C SW SE sec. 16-4n-69w. S.D. 2,135 ft.

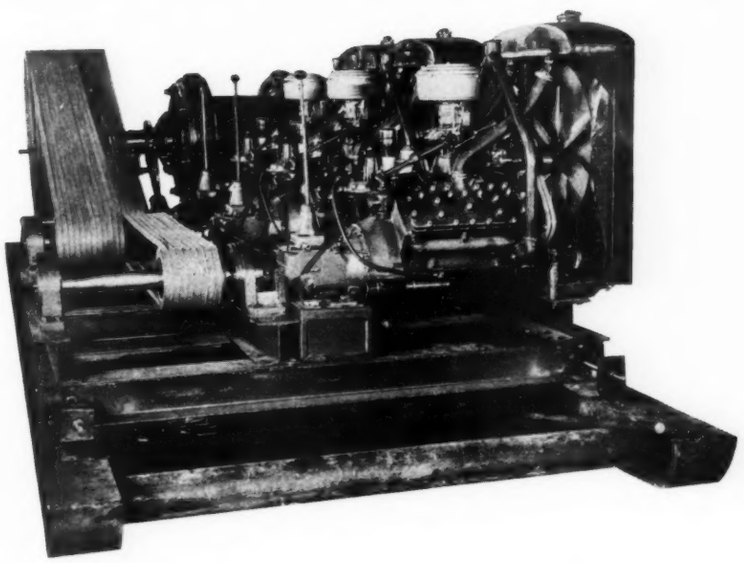
LaPlata County

N. Spatter No. 1 Bryce, SE SW SW sec. 31-33n-9w. T.D. 410 ft.; rng. pipe.

Lincoln County

Consolidated Smelting & Metals Corp. No. 1 Hancock, which has been standing for several months, has resumed and is making hole at 2,930 feet. Last identified formations were top of Dakota at 1,628 feet, third bench of the Morrison at 2,096 feet. Location is 12 miles southeast of the Gulf Oil Corp. No. 1 Smith in the Karvel district.

2850 feet of hole in 24 days



Cable tool rig powered with GENERAL POWER CONVERSIONS

The record time was made with a rig, using General Power Conversions of Ford V-8 Engines, that had drilled five previous wells and is still being used.

This production company is now using four triple power units, like the one shown above, and 26 single engine pumping units.

NOTICE

If your local, authorized Ford dealer cannot supply you with information concerning these units, please send us his name along with your request.

For dependable, economical power, burning natural gas or gasoline, there is a single, dual, or triple General Power Conversion for every generating, pumping, or drilling job.

GENERAL POWER CO.

QUAPAW, OKLA. **Phone 64**

Consolidated Smelting & Metals Corp. No. 1 Hancock, NE NE SW sec. 7-17s-52w. Drlg. 2,096 ft.
Gulf Oil Corp. No. 1 Smith, C SW SE sec. 19-15s-53w. Drlg. 930 ft. in sh.

Mesa County

Midwest Drlg. & Dev. Co. No. 1 Callahan, NE NW SE sec. 30-8s-97w. T.D. 1,174 ft.; U.R. 10-in. through wet sd. into dry sd.; G.S. through 350 ft. of W.
Continental Oil Co. et al No. 1 Miller, SW SW NW sec. 36-8s-91w. M.I.M. and digging cellar; contr. to Loffland Bros.

Jackson County

Colorado Oil Ref. Co. No. 1 North Park Coal, NW NW sec. 18-9n-78w. Drlg. 2,960 ft.

Moffat County

Mountain Fuel Supply Co. and Kerlyn Oil Co. No. 1 Duncan, C NE SW sec. 1-11n-100w. Drlg. 2,820 ft.
Morapas Pet. Co. No. 1 Coles, SW SW SE sec. 1-3n-92w. Drlg. 2,060 ft.; 10-in. mudded at 1,483 ft.
Anderson-Kerr Drlg. Co. et al No. 1 Denise, C SE SE sec. 19-9n-99w. S.D. 2,500 ft.; W.O. rotary tools.

Morgan County

Swisher et al No. 1 Lunt, SE cor. sec. 3-4n-60w. T.D. 1,718 ft.; fsg. two strings tools and bailer.

Park County

South Park Oil Co. No. 1 State, SE SE SW sec. 16-11s-75w. T.D. 5,705 ft.; shot 100 qts. at 4,150-4,200 ft.
South Park Oil Co. No. 1 Lemar, NE NE SE sec. 34-11s-75w. S.D. 5,210 ft.; M.I. 6¼-in.

Pitkin County

Glenco Dev. Co. No. 1 Govt., NW cor. sec. 9-10s-89w. T.D. 1,040 ft. (C.D.); rmg. to set 10-in.

Rio Blanco County

Buford Oil Co. No. 1 Govt., C SW SW sec. 16-1n-91w. Cmtd. 12½-in. at 116 ft.
Texas Co. and California Co. No. 1 Unit, SW SE NW sec. 35-3n-94w. Drlg. 4,850 ft. in dk. sh.

WESTERN KANSAS

An important test which has a direct bearing on the eastern Colorado play is being started in Wallace County, Kansas, in the Wilcox Oil & Gas Co. No. 1 Parker, SE NE section 9-11s-40w, which is just 17 miles east of the Colorado line. The Parker ranch consists of a little better than 10,000 acres under one ownership. Block was acquired early this year by the Wilcox company immediately after it had been released by Alex W. McCoy of Ponca City and C. D. Johnson of Wichita. Additional acreage brings total in block up to 18,000 acres. It is planned to test the Siliceous at an approximate depth of 5,000 to 5,500 feet.

PIPE LINES are like CREDIT,

life giving arteries of development. Since 1901 this Bank through intelligent Oil Financing each day has, and still is assisting every branch of the Petroleum Industry to further progress.

DIRECTORS
B. F. BARNETT, Vice President
J. P. BYRD, JR., Vice President
M. M. DOAN, Oil Investments
F. L. DUNN, Executive Vice President
A. L. FARMER, Real Estate
H. N. GREIS, Oil Producer
JOHN D. MAYO, Mayo's, Incorporated
R. OTIS McCLINTOCK, President
F. B. PARRIOTT, Oil Producer
W. G. SKELLY, President, Skelly Oil Company
ELMO THOMPSON, Vice President

THE FIRST NATIONAL BANK AND TRUST COMPANY OF TULSA

1895 We Bank on OIL 1937

WYOMING

Albany County

The Murphy Oil Co. No. 8 Holst, C SW SE section 13-17n-77w, on the Quealy dome, was completed for 15 bbls. per hour through the casing from the Dakota sand at 3,875 feet, total depth. The top of the Dakota is at 3,180 feet. The practice of carrying the hole down to the top of the Sundance and perforating pipe to produce from the upper pay so that at a later day it can produce from the lower sand was followed in this well. The location is on the southwestern side of the pool. While it is a quarter of a mile out from the nearest producers, it is in what was considered proven territory.

Murphy Oil Co. No. 10 Holst, SE SE NE sec. 13-17n-77w. Loc. (first report; N offset to No. 9 Holst, Quealy dome).
Ohio Oil Co. No. 1 Griffin, C SE SW sec. 2-21-77w. Ready to spud.
Murphy Oil Co. No. 9 Holst, NW SE NE sec. 13-17n-77w. Drlg. 1,677 ft. in gr. sh. and shells.
Wyco Oil Co., Inc. No. 1 Chappel, C NE NW sec. 33-21n-76w. Ran 725 ft. of 5-in. to top of Wall Creek; swbg. drlg. W.
Wyco Oil Co., Inc. No. 2 Chappel, NE NE NW sec. 33-21n-76w. Cmtd. 8¼-in. at 243 ft.; drlg. plg.

Big Horn County

The Ohio Oil Co. No. 2 Baker-Byron, SW NW section 23-56n-97w, in the Byron field, was completed for 225 bbls. per day at 5,524 feet, total depth, in the Tensleep. Top of saturation was at 5,294 feet.

Ohio Oil Co. No. 3 Sidon Canal, NW SW (Lot 40), sec. 24-56n-97w. Bldg. road.
Yale Pet. Corp. No. 1 Stock-Jones, SE cor. sec. 52-56n-97w. T.D. 4,050 ft.; drlg. by D.P.
Ohio Oil Co. No. 1 Pryde, C SW SE sec. 24-56n-97w. T.D. 6,035 ft. in Tensleep; no shows; will P.B.
Joan Oil Co. No. 1 Howell, sec. 32-55n-97w (Lot 63). T.D. 1,150 ft.; U.R. 12¼-in.
Peay Oil Co. No. 1 Denio, Tr. 43-C, sec. 15-55n-97w. T.D. 3,930 ft.; fsg.
Woods-Callahan Oil Co., Ltd., and Wyoming O. & R. Co. No. 1 Evans, NE NE NW sec. 12-44n-91w. Trying to S.O.W. in Madison at 2,300 ft.

Campbell County

Powder River O. & G. Co. No. 1 Rhodes, NE SE NW sec. 24-49n-74w. Drlg. 475 ft.; carrying 15½-in.

Carbon County

Ohio Oil Co. No. 12 H.&C., SE SW sec. 35-20n-78w. R.U.R.
Sinclair-Wyoming Oil Co. No. 11 Wertz, SE NW NW sec. 7-26n-89w. Drlg. 4,588 ft. in r.b.
Ohio Oil Co. No. 1 Wyo. O. & G. Co., C SE SW sec. 29-27n-89w. T.D. 1,488 ft.; plg. nearby old well before completing.
Producers Oil Co. No. 1, CNL sec. 14-20s-88w. Drlg. 194 ft.
Ohio Oil Co.-California Co. No. 5 Cronberg-U. P., C NW NW sec. 25-21-79w. Drlg. 4,960 ft.
Ohio Oil Co. No. 1 Union Pacific, C NW NW sec. 20-21n-80w. Drlg. 3,411 ft.
Ohio Oil Co.-California Co. No. 3-A Kyle, C SW NE sec. 26-21n-79w. Drlg. 5,034 ft.
Medicine Bow Oil Co. No. 1 Hintze-Govt., C NE SE sec. 18-22n-78w. T.D. 2,347 ft.; P.B. to second Sundance at 2,140-80 ft.; shot with 40 qts.; tstg.

Converse County

Hall-Thornton et al No. 1 Roth, C NW SE sec. 13-32n-69w. S.D. 240 ft. for csg.
Wyoming Southern Oil Co. No. 1 Lane, C NW NE sec. 27-32n-69w. Spd. and S.D.
Elbe Oil Ld. & Dev. Co. No. 1 Benham, NW NE sec. 5-31-70w. M.I.M.
Tom Carney No. 1 Beaver, SE SE SW sec. 28-35n-68w. M.I.M.
Chadron-Osage Oil Co. No. 1 State, SW cor. sec. 16-32n-69w. Drlg. 3,960 ft. in Niobrara.
Wyoming Southern Oil Co. No. 3 Salisbury, NE NE SE sec. 27-32n-69w. Drlg. 375 ft.; 8¼-in. at 207 ft.
Chadron-Osage Oil Co. No. 1, SW NE NE sec. 27-32n-69w. Loc.; shallow gas well; (first report).

Fremont County

Stanolind O. & G. Co. No. 1 Govt., C SE SE sec. 3-33n-96w. Cellar.
Sinclair-Wyoming Oil Co. No. 2-C Muskrat, NE SW SW sec. 1-33n-92w. Cg. 7,977 ft. in Madison; top at 7,920 ft.
H. Kenyon Burch No. 1 Enos, CEL NE NE sec. 28-3n-1w. S.D.O. 970 ft.; no shows.
Ben Stewart No. 1 Darnell, NE SE sec. 26-3n-1w. Drlg. 500 ft.; 8¼-in. at 475 ft.

Hot Springs County

Italo Pet. Corp. No. 1 Phebus-Govt., NW NW SW sec. 11-44n-98w. T.D. 350 ft.; cmtd. 15½-in. at 300 ft.; W.O.C.

Johnson County

The Carter Oil Co. No. 3 Rider, C NW SE section 17-48n-82w, a deep test of all possible horizons below the Wall Creek gas sands on the Billy Creek structure, was drilled into the Ordovician at a total depth of 7,775 feet and is plugging to abandon. It had no important shows. Sand record is as follows: 862 to 1,020 feet, Shannon sand; 3,160 to 3,170 feet, first Wall Creek sand; 3,665 to 3,720 feet, second Wall Creek sand; 3,890 feet, top Thermopolis shale, no evidence of Muddy sand; 4,613 to 4,637 feet, Lakota sand; 5,047 to 5,160 feet, Sundance, cored 5,046-5,189 feet; 6,258 feet, top Tensleep; 6,570 feet, top Amsden formation; 6,715 feet, top Amsden sand; 6,873 feet, top Madison lime; 7,260 feet, top Big Horn lime.

Lincoln County

H. M. Eller et al No. 4 Govt., SE NW SW sec. 32-19n-116w. T.D. 401 ft.; will test S.O. in lenticular sd. at 397-401 ft.

Place Oil Co. No. 1 Davis, SE SE SE sec. 9-26n-11w. S.D. 1,128 ft. for pipe.

Natrona County

The Stanolind Oil & Gas Co. No. 8 T.P., C NW SE section 26-40n-79w, Salt Creek field, the first well drilled in that field for several years and which marked the beginning of the development of the Tensleep horizon, was listed as a completion at 4,000 feet after plugging back from 4,143 feet to shut off bottom water. Before plugging back it made 1,800 bbls. per day with some water. After plugging back it made 211 bbls. per day through an one-eighth inch bean. The elevation is 4,960 feet. Top of the Tensleep was 3,892 feet. Location is half a mile north and a little east of the first producing Tensleep well drilled in 1930 by the Midwest Refining Co. which made 1,949 bbls. of 27.5-gravity oil first day. Two Tensleep wells are now drilling and cellar has been dug for another.

Stanolind O. & G. Co. No. 11 Wyo. Asso.-Tensleep, C NE NW sec. 35-40n-79w. Spdg.
Stanolind O. & G. Co. No. 29 Wyo. Asso.-Tensleep, C SW SW sect. 26-40n-79w. M.I.M.
General Pet. Corp. No. 1 Govt., C NW SE sec. 21-35n-77w. R.U.R.
Wyalta Oil Co. No. 4 Govt., NW NW sec. 5-29n-81w. Cmtd. 6⅝-in. on top Sundance at 1,082 ft.; rng. 2-in. tbg. to test at 1,030-72 ft.
Wyalta Oil Co. No. 5 Govt., SW SW sec. 30-30n-81w. Tstg. at 1,021 ft.
Wyalta Oil Co. No. 6 Govt., NE SE NW sec. 5-29n-81w. Cmtd. 10-in. at 704 ft.; Dakota at 565-664 ft.

Niobrara County

Another big well in the deeper Minnelusa sand in the Lance Creek field was completed in the Ohio Oil Co. No. 10 Lamb-Acct. 2, C NE SE section 5-35n-65w, which made 1,666 bbls. first 22 hours with 1,700,000 feet of gas at a total depth of 5,423 feet. Top of saturation was at 5,405 feet and the 7-inch was set at 5,354 feet. The elevation is 4,472 feet. Location is on the southeastern edge of the Sundance sand pool and one contour higher than its No. 5 Leo, in section 35-36n-65w, the first of the Minnelusa sand wells about which any information became public. The two wells are 2½ miles apart. No. 10 Lamb topped the Sundance at 4,148 feet and went into the red beds at 4,182 feet. The basal Sundance was noncommercial.

The J. M. Huber Corp. has made a location for its No. 3 Joss on the west side, close to the edge for Sundance production, but inside the contour on which the Ohio Oil Co. No. 10 Lamb was a good producer in the Minnelusa.

J. M. Huber Corp. No. 3 Joss, NE NE SW sec. 6-35n-65w. R.U.R.; (first report).
Continental Oil Co. No. 3 Apex-1, SE SE NE sec. 34-36n-65w. Drlg. 1,385 ft.; cmtd. 13-in. at 315 ft.
W. A. Maupin et al No. 1 Berggren, NW sec. 23-35n-63w. R.U.C.T.
J. M. Huber Corp. No. 2 Lamb, NE SE SW sec. 27-36n-65w. Drlg. 3,245 ft.
Continental Oil Co. No. 5-B Schuricht, C SW SW sec. 5-35n-65w. Drlg. 4,690 ft. in red sh.
Ohio Oil Co. No. 2 Taylor-O.P.C.-32, NW NW SW sec. 3-35n-65w. T.D. 5,611 ft. in Minnelusa; rng. form. tester to determine source of W.
Ohio Oil Co. No. 2 Leo-O.P.C., NE NE SE sec. 35-36n-65w. R.U.R.
Ohio Oil Co. No. 1 Leo-O.P.C.-7, NW NW SE sec. 35-36n-65w. Drlg. 5,270 ft.
Continental Oil Co. No. 1 Leach, SW NE NE sec. 29-36n-64w. Drlg. 3,808 ft. in sh.
Argo Oil Co. No. 4 Ford, SW NW SE sec. 33-36n-65w. Cg. 5,500 ft.
A. B. Cobb and Holly Dev. Co. No. 2 Novick, SE SE SW sec. 6-35n-65w. No report; (mystery well).
Continental Oil Co. No. 8 Otto Rohiff, SW SW SE sec. 31-36n-65w. T.D. 4,025 ft.; top r.b 4,024 ft.; 7-in. at 3,969 ft.; swbg. mostly W.
Continental Oil Co. No. 10 Tom Bell Cattle, C SW NW sec. 34-36n-65w. Drlg. 6,030 ft. in L.
MacKinnie Oil & Drlg. Co. No. 2 Thompson, NW NW NE sec. 7-35n-65w. S.D. 4,064 ft.; Sundance at 4,049-64 ft.; dry.

Park County

Resolute Oil Co. No. 1 Northern Pacific, C NE NW sec. 21-57n-101w. Drlg. 4,650 ft.
Resolute Oil Co. No. 1 Govt., C NE NE sec. 20-57n-101w. Drlg. 7,805 ft.
Ohio Oil Co. No. 15 Woods, O.P.C.-3, NW SE sec. 30-58n-99w. Drlg. 279 ft.; cmtd. 13⅜-in. at 195 ft.

Platte County

Dividend O. & R. Co., Inc., No. 1, CSL NW SW sec. 17-24n-66. Drlg. gr. sd. 3,414 ft.

Sublette County

Texas Co. No. 6-J, NE SE SE sec. 27-27n-113w. T.D. 1,071 ft.; P.B. to 920 ft.
Texas Co. No. 3-I, SE NW NW sec. 27-27n-113w. R.U.; (first report).

Sweetwater County

Sinclair-Wyoming Oil Co. No. 77, SE NE NE sec. 10-26n-90w, Lost Soldier district. R.U.R.
Mountain Fuel Supply Co. No. 1 Union Pacific, C SW SE sec. 13-17n-104w. Drlg. 3,330 ft.
Mountain Fuel Supply Co. No. 1 Williams, C NE NE sec. 5-12n-95w. Ready to spd.
Mountain Fuel Supply Co. No. 1 Stone, C SW SW sec. 18-19n-103w. T.D. 4,546 ft.; 3,000 B.P.D. sulfur W. in Lower Sundance; P.B. to test at 3,800 ft.
Mountain Fuel Supply Co. No. 1 Union Pacific, C SE NE sec. 29-15n-104w, S of Baxter Basin. Loc.

Uinta County

E. A. Ottman et al No. 1 Govt., C SE NW sec. 26-14n-110w. Drlg. 930 ft.

Washakie County

The Wyoming Oil & Refining Co. No. 9 Government, CNL NE NW section 31-48n-90w, Hidden dome field, was completed in the Frontier at 1,500 feet for 68 bbls. per day.

Arlton & Doyle No. 1 Govt., SW SW SE sec. 29-48n-91w. S.D. 1,750 ft.

Weston County

Mush Creek Oil Co. No. 1 Carmine, SE SW sec. 31-44n-62w. Loc.
Le Faivre Oil Synd. No. 1 Martin, NW NW SW sec. 29-45n-68w. Drlg. 2,550 ft.; will U.R. 10-in. at 2,130 ft. for W.S.O.
Big Indian Oil & Dev. Co. No. 1 George, SW SE NW sec. 12-47n-64w. Drlg. 740 ft.
Osage Trust Co. No. 4, SE NW SE sec. 22-46n-63w. Drlg. 146 ft.

MONTANA

Montana production in July, as reported by the State Conservation Board, was 557,791 bbls., an increase of 25,722 bbls. as compared with June, and storage at the end of the month was 1,285,950 bbls., a decrease of 37,249 bbls. Exports to Canada were 279,491 bbls., a decrease of 5,418 feet.

Big Horn County

E. L. Dana No. 1 Hardy, SW NW sec. 22-9s-35e. Drlg. 200 ft. in Claggett sh.
Daniels Pet. Co. No. 1 May, C SE SE sec. 13-1s-33e. S.D. 4,120 ft. (C.D.); H.F.W.

Carbon County

Miracle Oil Co. No. 2, CWL NE SE sec. 3-6s-23e. Drlg. 1,495 ft.
R. C. Tarrant No. 1 Heare, CWL NE NW sec. 14-6s-19e. Drlg. 830 ft.
Ohio Oil Co. No. 16 Kirt, C SE SE sec. 4-7s-21e. Drlg. 5,049 ft.; Dakota dry.
Geo. Muth et al No. 1, CSL SE SE sec. 23-6s-23e. S.D. indef. at 1,500 ft.
Henderson Prod. Co. No. 1-H-11 Elk 11, SE SE NW sec. 35-9s-23e. Drlg. 1,470 ft.; slight S.O. and G. in sh.

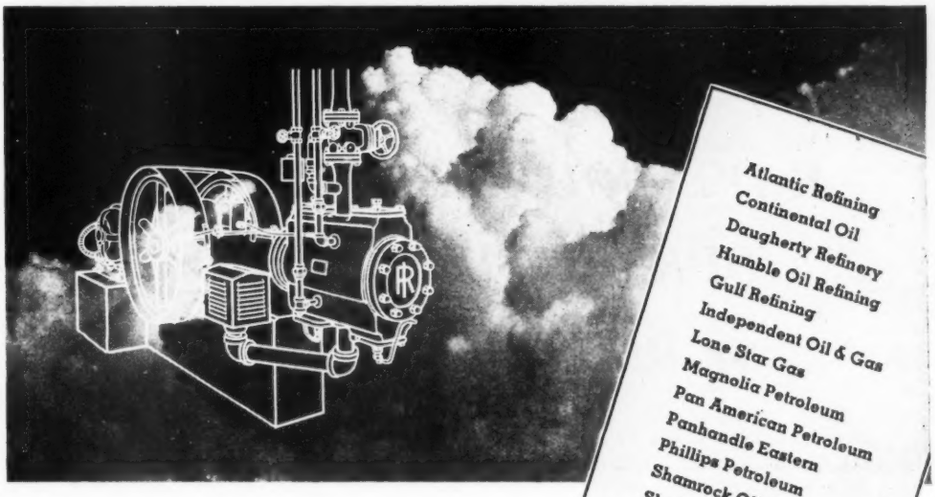
Choteau County

Security Pet. Co. No. 1 Johnson, NE sec. 23-26n-3e. Drlg. 896 ft.

Glacier County

There were no completions or new operations in the Cut Bank field. A well is being started on the Canadian side by the Home Oil Co. in its No. 1 Coutts, half a mile from the boundary, which will be closely watched by Cut Bank and Kevin-Sunburst operators. It

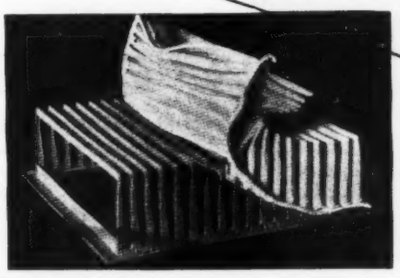
They all O.K. Coppus for the cleanest air . .



Atlantic Refining
Continental Oil
Daugherty Refinery
Humble Oil Refining
Gulf Refining
Independent Oil & Gas
Lone Star Gas
Magnolia Petroleum
Pan American Petroleum
Panhandle Eastern
Phillips Petroleum
Shamrock Oil & Gas
Shell Petroleum
Socony Vacuum
Standard Oil N. J.
Standard Oil Ohio
Standard Oil Louisiana
Sun Oil
Susquehanna Pipe Line
Texas Pipe Line

Nearly every leading oil and gas producer and refiner uses Coppus Air Filters — accepted and listed by manufacturers controlling 96% of air compressor and stationary engine sales. Dry-type — no oil. Wide openings — no clogging. Steel construction — no wire. Highest efficiency rating of any commercial filter.

Write Coppus Engineering Corp., 354 Park Ave., Worcester, Mass., for Bulletin F-310-3. Branches in oil centers, representatives in principal cities — listed in THOMAS REGISTER.



WIDE AVENUES for CLEAN AIR

CLEAN AIR FOR MEN AND MACHINES COPPUS

Other Coppus Products: filters for industrial and general ventilation; Heat Killers; exhausters, ventilators, and blowers of many types; steam turbines. See SWEET'S CATALOG, COMPOSITE CATALOG.

COPPUS AIR FILTERS PASS CLEAN AIR

Announcing

ENSIGN'S FACTORY BRANCH AT DALLAS ★

TO BETTER SERVE YOUR NEEDS

To meet the growing requirements of the various Texas, Mid-Continent and Gulf Coast oil fields, Ensign has established its new factory branch at Dallas where complete stocks of all sizes of Ensign equipment in complete assembled units or single replacement parts can be secured without delay.

Ensign fine precision carburetting and fuel regulating equipment is manufactured in various types for using Natural Gas; Gasoline; Butane; and both gas and gasoline in combination.

★ ENSIGN CARBURETOR CO., Ltd. ★

HUNTINGTON PARK • CALIFORNIA

Branches: Chicago, Illinois; Dallas, Texas

HAVE YOU RENEWED YOUR JOURNAL SUBSCRIPTION? DO IT PROMPTLY

STREAMLINED

DAVIS "PACKLESS" JOINTS

FLOAT box and control valve for direct operation . . . both fitted with the Davis Packless Head . . . mean the utmost in accurate control of liquid level! There is no offset between float arm and lever. Power is transmitted from float to valve disc in the same vertical plane. The diaphragm sealed ball-joint eliminates leakage, minimizes friction, and stops maintenance worries. Ask for detailed information about this exclusive Davis feature which is now available in a complete line of float boxes and control valves for oil refinery and natural gasoline plant service.

DAVIS REGULATOR CO.

2543 S. Washtenaw Ave., Chicago, Ill.

Westcott & Greis, Inc., Mid-Continent Representatives, Tulsa, Dallas, Houston
Bert W. Paul, West Coast Representative, Los Angeles

is just north of section 5-37n-5w. It topped the Colorado at 845 feet and is drilling at 2,250 feet.

Montana Headlight Oil Co. No. 9 Yunck, NE SW NW sec. 1-34n-6w. Drlg. 1,370 ft.; Colo. 415 ft.; 10¾-in. at 435 ft.

Montana Headlight Oil Co. No. 10 Yunck, C SW SE sec. 1-34n-6w. Drlg. 1,130 ft.

Texas Co. No. 1 Curren, NW SE SE sec. 5-32n-5w. Cmtd. 10-in. at 602 ft.

Glacier Prod. Co. No. 3 Fuller, SE SE SE sec. 17-33n-5w. Drlg. 2,420 ft.

Glacier Prod. Co. No. 1 Newell Unit, SE SE NW sec. 13-33n-5w. Drlg. 2,260 ft.

Texas Co. No. 5 Tribal-121, C SW SE sec. 36-33n-6w. Drlg. 2,150 ft.; Colo. at 640 ft.

Texas Co. No. 3 State (M-455), C NE NW sec. 16-32n-5w. Drlg. 1,785 ft.; Colo. at 610 ft.

Texas Co. No. 7 Morrison, CEL SW SE sec. 22-35n-6w. T.D. 2,876 ft.; cmtd. 7-in. at 2,866 ft.

Glacier Prod. Co. No. 1 Monroe Unit, SW SW NE sec. 23-33n-5w. Cmtd. 7-in. at 2,727 ft.; W.O.C.

Lawler-Hoer No. 2 Downen, SW SE SW sec. 9-33n-5w. Cmtd. 10-in. at 540 ft.; W.O.C.

Indian Oil Co. No. 3 Haglund, Sr., C SW NW sec. 13-34n-6w. Drlg. 1,770 ft.

K. D. Pardee No. 1 Jackson, CSL SE NE sec. 35-34n-6w. Drlg. 2,795 ft.

R. C. Tarrant No. 6 Long-Miller, C SW NW sec. 24-34n-6w. Rng. 8⅝-in. cave string at 2,290 ft.

Drumheller Oil Trust No. 1 fee, C NE SW sec. 17-34n-6w. T.D. 2,700 ft.; fsg.

K. D. Pardee No. 1 Corrigeaux, NE NE SE sec. 35-34n-6w. Cmtd. 7-in. at 2,960 ft.; S.D.

A. R. Pardee No. 1 Anderson, C SE SW sec. 3E-32n-5w. T.D. 2,900 ft.; C.O. at 1,700 ft.

Outside Cut Bank

W. E. Ullman No. 1 Allotted, C SW sec. 35-36n-8w. Drlg. 3,200 ft.

Judith Basin County

Fletcher E. Hunt No. 3, NW SE NE sec. 30-14n-15e. T.D. 1,700 ft.; S.D.

Roosevelt County

John W. Schmidt et al No. 1 Freu, NW NW NE sec. 21-28n-50w. Drlg. 700 ft.

Toole County

Kevin-Sunburst had four completions, of which two were dry holes and five new operations.

M. W. Cassidy No. 2 Thompson, C SE NW section 2-35n-3w, had sulfur water in the Madison contact at 1,950-55 feet, and was abandoned.

Adlon Oils & Mines, Ltd. No. 2 Ward, C SE SE section 29-35n-3w, made 60 bbls. per day from the contact at 1,710-35 feet after acidizing with 500 gallons. It had 60 feet of oil before acidizing.

A. E. Crumley No. 2 Government, SW NE NE section 35-36n-2w, is pumping 20 bbls. per day from the Sunburst at 1,460-95 feet after a shot with 20 quarts.

R. C. Tarrant No. 1 Barkulo, C NW NW section 25-35n-4w, had sulfur water in the contact at 2,019-25 feet and is being abandoned.

Treasure State Oil Co. No. 5 Shaw, NW SE NE sec. 35-36n-2w. Drlg. 300 ft.

Guy Smith No. 1 Govt., C NE SE sec. 25-36n-3w. Spd. 10 ft. and S.D.

Consolidated Gas Co. No. 2 Lutz, C SE NE sec. 33-33n-2w. Drlg. 350 ft.

G. & A. Oil Co. No. 10 Goeddertz, NE SW SW sec. 23-35n-3w. Drlg. 550 ft.

A. H. Blaze No. 6 Burwash, SW NW SW sec. 15-34n-1w. Drlg. 530 ft.

Rimrock Oil Co. No. 3 Schmidt, SE NW NW sec. 29-35n-3w. Drlg. 1,600 ft.

A. E. Crumley & Sons No. 10 Fryberger, SW NE SE sec. 24-35n-3w. Drlg. 600 ft.

Pfabe & Engleking No. 1 Innerberg, NW SE SE sec. 26-35n-4w. Drlg. 1,025 ft.

Ohio Oil Co. No. 3 Swayze, SE NW SW sec. 35-36n-2w. Drlg. 1,560 ft.

P. L. Eddy No. 7 Seabrook, SE SW SW sec. 19-35n-2w. Drlg. 1,500 ft.

Raymond E. Dockery No. 2 Gunderson, SE SW NW sec. 19-35n-2w. Drlg. 1,345 ft.

Rice Oil Co. No. 1 Anderson, SW. SW NE sec. 8-35n-1w. T.D. 1,738 ft.; contact 1,734 ft.; 10 B.P.D. before acid.; 500 gals.

M. W. Cassidy No. 1 Mary, CEL NE NW sec. 5-34n-3w. Drlg. 1,400 ft.

Welch Bros. No. 1 Ward, C SE NE sec. 29-35n-3w. Drlg. 1,150 ft.

C. T. Olen No. 7 Engemoen, C NW NW sec. 14-35n-2w. T.D. 1,607 ft.; contact 1,591 ft.; stdg.

C. L. Tomlinson No. 1 Davidson, NW NE SE sec. 28-35n-3w. S.D. 1,500 ft.

E. O. Reickhoff No. 3 Baum, SW SW SE sec. 3-35n-3w. S.D. 110 ft.

California Co. No. 7 Neumann, NW NW NE sec. 23-35n-2w. Loc.

California Co. No. 6 Neumann, NE NW NE sec. 23-35n-2e. Drlg. 1,463 ft.

McCurdy No. 1 Hollowell, C SE SW sec. 1-35n-3w. S.D. 1,200 ft.

Capitol Oil Co. No. 1 Pace, C SE SW sec. 27-36n-1w. T.D. 2,010 ft.; tools out; trying to S.O.W.

Bryant Bros. No. 1 Lashbaugh, NE SW NW sec. 34-25n-2w. T.D. 850 ft.; R.U. heavier mach. to resume.

Outside Kevin-Sunburst

Model Oils, Inc., No. 1 Fey, NE SW sec. 5-37-3w. Drlg. 1,900 ft.

Coolidge & Coolidge (formerly Hardrock Oil Co.) No. 1 Keilbaugh, C NW SE sec. 13-37n-1w. S.D. 425 ft.

Yellowstone County

Riverto Oil Co. No. 1 Fox, CEL NW NE sec. 14-2n-23e. S.D. 1,041 ft. for supplies; (formerly Western Dakota Oil Co.).

Broadview Dome Oil Co. No. 1, NE NE SW sec. 18-3n-23e. Drlg. 2,600 ft.; Thermopolis sh.

Laurel Oil Co. No. 1, C NW SW sec. 7-2s-24e. R.U.

UTAH

Carbon County

Kelly Young No. 1, NE NE SE sec. 30-14s-10e. T.D. 1,080 ft.; S.G. through H.F.W.; U.R. 6⅝-in. for S.O.

(Continued on Page 276)

East and East Central Texas

By L. E. BREDBERG

GENERAL AMERICAN ADDS TO ITS HOLDINGS IN EAST TEXAS

DALLAS, Tex., Sept. 13.—One of the largest transactions of the year in producing properties in the East Texas field was consummated in the past week when General American Oil Co. of Shreveport purchased and took over the producing leases of the Barnsdall Oil Co. on which are located 74 wells entirely owned by the company and 11 others in which Barnsdall had an interest. This purchase, the consideration of which has not been divulged, gives the buying company nearly 350 producing wells in the field, adding to the connections of the associated company, the Bell General Pipe Line Co. which is now connected to nearly 700 wells in the field, in the Gregg and Upshur County sector. The General American Oil Co. operates two refineries in the field, one of which is at Gladewater, was overhauled and additions made to it to make it an up-to-date plant, and which started operating July 1. It is now handling around 2,170 bbls. of oil per day.

East Edge Trinity Test

The Trinity test being drilled by the Humble Oil & Refining Co. and the Gulf Oil Corp. about 2 miles east of the Gregg County part of the East Texas field, on the E. Robertson lands, M. Mann Survey, about 2½ miles southwest of Longview, logged the Austin chalk at 3,329-71 feet and topped the Woodbine sand at 3,371 feet. It is now drilling below 3,525 feet. Elevation is 272 feet. This is no doubt the most important Trinity test drilling at the present time in the district due to its location in regard to the East Texas field where many operators are closely watching the test for results.

The Trinity test of the American Liberty Oil Co. and others on the LaRue lands, in Block 11, Phillips Jackson Survey, in southeastern Henderson County, is another important deep wildcat drilling in the district. It topped the Woodbine series at 4,464 feet this week and the Georgetown lime at 5,206 feet and is drilling ahead in lime at 5,220 feet. Elevation is 464 feet. This test is located 2 miles west of LaRue in an area in which a number of Woodbine sand failures have been drilled.

6,500 Foot Test

In the northwestern part of Henderson County, 12 miles southwest of Maybank, and about the same distance northeast of the Powell field in Navarro County, Sherman Hunt has moved in derrick for a 6,500-foot test on the A. R. Dillard farm in the eastern part of the Henry Jeffries Survey. This depth is expected to carry the hole to the basal Glen Rose of the Lower Trinity.

Wildcat Failure

Another wildcat was written off the possible producing list this week when A. C. Bierman and others No. 1 L. J. Strong, located in the F. J. Anthony Survey, 1 mile northwest of Nixon, in Cherokee County, was given up as a failure at a total depth of 4,496 feet. Elevation is 399 feet.

Reports are to the effect that the Lone Star Gas Co. is to drill a series of tests on the Buffalo structure of the Shell Petroleum Corp. in Leon County, where the latter company drilled three gas-distillate wells about three years ago. Lone Star is to take the gas from the gas producers drilled and Shell is to operate and take the oil in case oil producers are completed.

Eastern Texas is now at a low level from a wildcat standpoint, with only 14 tests actually reported as active and with about the same number standing shut down. Many dry holes, both Woodbine and Trinity, drilled during the last two years, have had much to do with discouraging operators. The percentage of new discoveries has been so small that there is but little incentive for anyone to put down a wildcat in the district, regardless of how good a structure may appear. The better looking structures have practically all been tested in the Woodbine series, and many of them have also been tested in the Trinity, several of the wildcats now drilling on old and well known structures having proved dry in the Woodbine are seeking production in the Trinity.

The Opelika test, the second for the structure in northeastern Henderson County, drilling by the Tide Water Associated, Seaboard Oil Corp. and Humble Oil & Refining Co. on the McElreath and Suggett lands, in the W. P. Wyche Survey, is now down 8,825 feet and coring ahead. It is reported that the Humble Oil & Refining Co. will drill a test to the northeast of the Opelika tests, the first of which is producing around 9 bbls. per day from the Glen Rose at 7,195 feet. How deep the second test is to be carried is not known. The companies are now seeking production from the Travis Peak.

EAST TEXAS FIELD

Gregg County

Amerada Petroleum Corp. No. 15 Killingsworth, 3,589-3,619 feet, 71 bbls. per hour. Atlantic Rfg. Co. No. 86-A Judge, 3,508-3,640 feet, 90 bbls. per hour; No. 78 Moore, 3,498-3,602 feet, 72 bbls. per hour. Atlantic & Sun Oil Co. No. 10-B Barnwell, 3,487-3,540 feet, 78 bbls. per hour. Deep Rock Oil Co. No. 18 Jones, 3,605-55 feet, 20 bbls. in 15 minutes. General Crude Oil Co. No. 11 Barnwell, 3,481-88 feet, 65 bbls. per hour. Great Plains Oil Co. No. 6 Christian, 3,606-40 feet, 40 bbls. in 30 minutes. Gulf Oil Corp. No. 29 Fishburn, 3,483-95 feet, 47 bbls. per hour. Humble Oil & Rfg. Co. No. 16 Carter, 3,603-10 feet, 60 bbls. per hour; No. 17 Carter, 3,608-18 feet, 50 bbls. per hour. Magnolia Petroleum Co. No. 18 Foster, 3,555-70 feet, 96 bbls. per hour; No. 19 Jones, 3,640-65 feet, 100 bbls. per hour. Shell Petroleum Corp. No. 27 Burnside, 3,488-3,525 feet, 40 bbls. in 30 minutes. Stanolind Oil & Gas Co. No. 7 Wilhite, 3,630-3,704 feet, 69 bbls. per hour. Sun Oil Co. No. 14-B Tooke, 3,568-3,664 feet, 31 bbls. in 30 minutes. O. D. Adams No. 4 Still, 3,516-79 feet 20 bbls. in 4 hours on pump. Bennett Petroleum Co. No. 4 Daniels, 3,525-50 feet, 40 bbls. in 38 minutes. Fair & Thompson No. 6-B Carr, 3,454-78 feet, 105 bbls. in 2 hours. Gulf Oil Corp. No. 10 Clayton, 3,526-38 feet, 65 bbls. per hour. Hamil and Smith No. 3 Hughey, 3-542-65 feet, 30 bbls. per hour. Perot Oil Corp. No. 6 McNeeley, 3,639-40 feet, 60 bbls. per hour. T. S. Schroeder No. 3-B King, 3,442-80 feet, 30 bbls. in 4 hours on swab. Sun Oil Co. No. 21 Reese, 3,665-66 feet, 46 bbls. per hour; No. 18 Rolling 3,544-3,617 feet, 65 bbls. per hour. Tide Water Associated No. 33 Bivens, 3,632-38 feet, 15 bbls. in 20 minutes. W. C. Turnbow No. 5 Clary, 3,543-51 feet, 8 bbls. in 80 minutes on air lift. R. H. Vise No. 7 Wells, 3,657-58 feet, 31 bbls. in 30 minutes.

Rusk County

Carl Dunham No. 9 Scoggins, 3,687-88 feet, 60 bbls. per hour. Gulf Oil Corp. No. 11 Terrell, 3,609-13 feet, 50 bbls. per hour. Humble Oil & Rfg. Co. No. 9 Barton, 3,640-44 feet, 40 bbls. per hour; No. 19 Sexton, 3,667-3,745 feet, 60 bbls. per hour. J. C. Prine and others No. 1-A Warren, 3,777 feet, 20 bbls. in 5 hours on pump. Stidham & Thrasher No. 1 Birdsong, 3,619-40 feet, 38 bbls. per hour. Arkansas Fuel Oil Co. No. 18 Wheelis, 3,659-84 feet, 11 bbls. in 15 minutes. Atlantic Rfg. Co. No. 45 Kinney, 3,552-3,620 feet, 35 bbls. per hour. Blackwell Oil & Gas Co. No. 7-B Stone, 3,621-56 feet, 40 bbls. in 40 minutes. Everets Drilling Co. No. 8 Cole, 3,732-35 feet, 100 bbls. in 45 minutes. Gulf Oil Corp. No. 10 Johnson, 3,786-88 feet, 5 bbls. per hour through quarter-inch choke. Humble Oil & Rfg. Co. No. 54 Blackwell, 3,652-63 feet, 60 bbls. per hour; No. 27 Thompson, 3,657-67 feet, 65 bbls. per hour. Jackson and others No. 9 Wilson, 3,597-3,615 feet, 75 bbls. in 30 minutes. Magnolia Petroleum Co. No. 19 Mason, 3,625-78 feet, 20 bbls. in 2 hours on pump. Ohio Oil Co. No. 84 Cross, 3,609-38 feet, 64 bbls. per hour. Stanolind Oil & Gas Co. No. 17 Millstead, 3,618-82 feet, 31 bbls. per hour. Tide Water Associated No. 8 Flanagan, 3,650,65 feet, 20 bbls. in 20 minutes.

Smith County

Arcadia Rfg. Co. No. 17-A Green, 3,739-40 feet, 20 bbls. in 20 minutes. M. McMurray No. 29 Turner, 3,808-09 feet, 65 bbls. per hour; No. 33 Turner, 3,797-98 feet, 40 bbls. in 30 minutes. Martex Oils Inc. No. 43 Mayfield Co. 3,743 feet, 47 bbls. per hour. The Texas Co. No. 11-B Jarvis, 3,665-66 feet, 30 bbls. per hour. Texas Gulf Production Co. No. 20 Hodnett-Melton, 3,686-87 feet, 20 bbls. in 20 minutes.

Upshur County

General American Oil Co. No. 13 Wells, 3,688-93 feet, 20 bbls. in 25 minutes. Humble Oil & Rfg. Co. No. 22 Johnson, 3,660-70 feet, 52 bbls. per hour; No. 13-B Miller, 3,673-80 feet, 42 bbls. per hour.

EAST CENTRAL TEXAS COMPLETIONS

Anderson County

F. H. E. Oil Co. No. 1 C. Morrow, 5,335-72 feet, 19 bbls. in 24 hours through one-sixteenth inch choke. Hunt Oil Co. No. 1 Smith, 5,247-60 feet, 101 bbls. in 24 hours through one-eighth inch choke.

Angelina County

Plaza Oil Co. No. 2 Cope Heirs, dry and abandoned 2,200 feet, 3 miles east of Dibol. Dr. H. M. Wilson No. 2 Willroy, 1,435-60 ft., 5 bbls. per day on pump.

Cherokee County

A. C. Bierman and others No. 1 L. J. Strong, dry and abandoned 4,496 feet, elevation 399 feet, 1 mile northwest of Nixon.

Franklin County

L. S. Flannery No. 5 Heydrick, 4,249-96 feet, 18 bbls. per hour on pump. Grey & Wolfe No. 1-A Bolin, 4,307 feet, 323 bbls. on pump. Humble Oil & Rfg. Co. No. 2 Leake, 4,140-4,302 feet, 502 bbls. on pump. Werby and Tune No. 1 Sanders, 4,291 feet, 345 bbls. on pump.

Freestone County

Stanolind Oil & Gas Co. No. 2 Cullinan, 4,017-27 feet, 178 bbls. through one-eighth inch choke.

Henderson County

Allison Production Co. No. 5 Wathen, 4,089-4,100 feet, 156 bbls. through one-eighth inch choke. Sun Oil Co. No. 3 Wathen, 4,073-4,116 feet, 85 bbls. on pump.

Titus County

Cable Tool Drilling Co. No. 2 Edwards, 4,274-4,310 feet, 205 bbls. on pump. Housh and Thompson No. 4 Moore Grocery Co., 4,175-4,300 feet, 18 bbls. per hour on pump. Humble Oil & Rfg. Co. No. 3 Batson, 4,220-4,322 feet, 464 bbls. on pump; No. 5 Davis, 4,236-4,323 feet, 252 bbls. on pump. R. E. Moore Trustee No. 1-A R. S. Helton, 4,278-4,320 feet, 63 bbls. in 15 minutes on pump. O'Neal and Rotundi No. 1-A Helton, 4,285-4,345 feet, 30 bbls. in 24 hours. Scott Brothers No. 1-B Edwards, 4,254-4,303 feet, 260 bbls. on pump.

Van Zandt County

Armons and others No. 1 Brannon, abandoned 300 feet. Spratt Oil Co. No. 1 P. L. McNeill, dry and abandoned 684 feet, 4 miles north of Ben Wheeler.

Central West

By STAFF CORRESPONDENT

13 OIL WELLS, 5 DRY HOLES IN SOUTHERN ILLINOIS AREA

MATTOON, Ill., Sept. 13.—New locations, rigs and drilling wells continue to greatly outnumber the completions in the central Illinois area. Production is increasing steadily, and from an average of about 11,500 bbls. per day for the month of August has mounted to around 20,000 bbls. a day. In the past week no sensational wells were completed but a total of 13 new oil wells were reported. Five dry holes in producing counties were plugged and abandoned.

Completions of the Week

In Clay County, Wicklund Development Co. completed a failure in a wildcat test, No. 1 Sanford, SE SE NW section 29-3n-8e. St. Genevieve lime was topped at 3,067 feet, and McCloskey sand at 3,114 feet, total depth 3,160 feet. It was plugged back to 3,145 feet. The hole filled 1,800 feet with salt water and was abandoned.

Pure Oil Co. No. 2 Sarah Bechtel, SW SW NE section 33-3n-8e, Clay County started at 620 bbls. in 24 hours from sand at 2,953-59 feet, total depth 2,970 feet.

Wiser Oil Co. completed No. 4 D. Smith, SE SW NE section 28-3n-8e, Clay County, in sand at 2,960-64 feet and 2,970-75 feet, and it flowed 329 bbls. the first 24 hours.

Wiser Oil Co. No. 5 D. Smith, SE NE NE section 28-3n-8e, Clay County, flowed 903 bbls. in 24 hours from sand topped at 2,982 feet, total depth 3,002 feet.

Pure Oil Co. No. 5 Oscar Poppe, NW SW NW section 27-2n-8e, Clay County, flowed 1,212 bbls. the first 24 hours from sand at 2,963-66½ feet, total depth 2,991 feet, and the same company's No. 4 Oscar Poppe, flowed 1,570 bbls. in 24 hours from pay at 2,971-83 feet.

Wiser Oil Co. abandoned the location for No. 7 D. Smith, NW SW NE section 28-3n-8e, Clay County.

Pure Oil Co. No. 2 E. Walters, SE SW SW section 5-3n-9e, Richland County, flowed 584 bbls. the first day. It topped St. Genevieve lime at 2,918 feet, and was drilled to 2,977 feet, pay at 2,950-53 feet.

Pure Oil Co. No. 1 J. T. Palmer, SE SE SW section 5-3n-9e, Richland County, flowed 278 bbls. the first 24 hours from pay at 2,950-59 feet and 2,961-66 feet, total depth 2,977 feet.

Pure Oil Co. No. 1 Noe, SE SE SE section 6-3n-9e, Richland County, is shut down for orders. It had St. Genevieve lime at 2,915 feet, total depth 3,014 feet, with no pay sand showing.

Marion County Completions

C. G. Evans No. 1 E. Allison, CNL NW SW section 33-4n-1e, Marion County, was a failure. It was drilled to 1,717 feet. Roseclaire sand topped at 1,645 feet was shot with 40 quarts, but no oil resulted.

J. J. Staley Drilling Co. No. 1 O. Watkins, approximately in NW cor. SE SE SW section 28-4n-1e, got water in Benoist sand at 1,459-67 feet, and was abandoned.

Huddleston No. 1 Nottier and others, SE cor. NE SE SW section 28-4n-1e, had only a thin streak of Benoist sand at 1,459-60 feet and it was dry. The test was abandoned.

Hausman and others No. 2 P. J. Mojonnier, NW cor. SW NE SW section 28-4n-1e, is 30-bbl. pumper from Benoist sand at 1,437-33 feet. Coastal Production Co. No. 1 Chandler & Porter, SE cor. SW NE SW section 28-4n-1e was shot with 10 quarts at 1,438-48 feet and started at 120 bbls. per day on the pump. Adams Oil & Gas Co. No. 4-A Wasem, SE cor. NW NW NW section 28-4n-1e, pumped 84 bbls. the first 24 hours from sand at 1,399-1,433 feet. Same company abandoned the location for No. 11 Merryman, SW cor. SE SW section 28-4n-1e. Adams Oil & Gas Co. No. 9 Merryman, SE cor. SW section 21-4n-1e had pay at 1,401-45 feet and pumped 125 bbls. the first day. Adams Oil & Gas Co. No. 2 Anna L. Davidson, SW cor. SE section 21-4n-1e, was drilled to Roseclaire sand at 1,587-1,605 feet and plugged back to 1,500 feet. It was given a 10 quart shot at 1,428-35 feet and pumped 4 bbls. of oil in one hour and then quit producing. Adams Oil & Gas Co. No. 2 L. W. Balance, NE cor. NW SW SW section 28-4n-1e, started at 84 bbls. a day from Benoist sand at 1,410-34 feet. Kirk D. Holland No. 1 Symcox, SE cor. SW SW section 28-4n-1e is a 20-bbl. pumper at 1,446-54 feet.

In Clay County Wiser Oil Co. abandoned the location for No. 7 D. Smith, NW SW NE section 28-3n-8e.

In Wayne County Mammoth Producing & Refining Co. No. 1 Garrison, NW NW NE section 11-1s-7e was dry and abandoned at 3,412 feet.

Gordon Oil Co. No. 1 Carroll, NE NE SE section 8-2n-8e, Clay County, had McCloskey sand at 2,995-98½ feet. It flowed 441 bbls. the first 15 hours and 476 bbls. in the next 24 hours and then stopped. When put on the pump it produced salt water. It was not completed.

In Richland County Ohio Oil Co. No. 2 Arbuthnot, NE NW NW section 8-3n-9e, was acidized with 2,000 gallons and responded with 237 bbls. of oil in 12 hours; 101 bbls. in the next 24 hours and 103 bbls. the following 24 hours. It was next given a 4,000 gallon acid treatment and a 151-bbl. oil load and it swabbed 71 bbls. in 10 hours and 104 bbls. in 24 hours through 1-inch choke and then died. No. 3 Arbuthnot, NW NW NE section 8-3n-9e, was at a total depth of 2,975 feet with showings of oil at 2,945-46 feet; 2,951-53 feet and 2,962-64 feet. Southern Illinois Petroleum Co. was spudding No. 1 Allard, NW NW NW section 16-3n-9e. Anderson & Alfred No. 1 Rushville School, NW cor. section 7-3n-9e was a location.

Drilling Operations

In Vigo County, Indiana, Yaw & Pierson No. 1 Hulman, SW cor. NW SE SE section 7-11n-9w was running 12½-inch casing. Carter Oil Co. had derrick up for No. 1 Roy, CN half SE NE section 16-10n-10w and was drilling at 1,525 feet in No. 1 R. L. Drake, CS half SW NW section 15-10-10w.

In Wayne County, Illinois, Fitzpatrick & Myers No. 1 Shannon, SW NW SE section 26-2n-8e, had top of McCloskey sand at 3,046 feet and cored saturated Oolitic lime at 3,046-55 feet. J. D. Davis No. 1 Nugent & Rose, SE cor. NE SE SW section 21-2n-5e was drilling at 3,193 feet. A. Bruner No. 1 Huyoth, NW cor. section 30-2n-8e, was drilling at 2,480 feet.

The Marion County shallow field is the busiest spot in the state. Eddington and others No. 1 Nichols, NE SE SW SE section 12-4n-4e, a wildcat now shut down with nothing showing at 2,500 feet, will be carried down to 4,000 feet. Vickers and others No. 1 E. Farmer, SW cor. SE section 28-4n-1e was drilling at 1,300 feet; Vermillion Oil Co. No. 1 Symcox, NW cor. SE SW section 28-4n-1e drilling at 900 feet; Star Well Syndicate No. 1 A. Nottier, CWL NE NE SW section 28-4n-1e, in Benoist sand at 1,432-45 feet. Adams Oil & Gas Co. No. 2 Ingles CNL NW SE section 28-4n-1e, location; Adams No. 1 Ingles, CWL SW NE section 28, Benoist sand at 1,416-22 feet, ran 5½-inch casing to 1,407 feet and was drilling plug; Adams No. 1 Patoka, NW cor. SE NW SW section 28, drilling at 1,115 feet; Adams No. 1 Ainscough NW cor. NE section 28, total depth 1,618 feet, shut down waiting for orders; Adams No. 10 Merryman, C SW SW section 21-4n-1e Benoist sand at 1,410 feet; 5½-inch casing set at 1,408 feet, drilling plug; Marion Oil & Gas Co. No. 1 H. E. Wilson, NE NE SE section 18-3n-3e, was trying to drill by tools at 454 feet; Texas Co. No. 1 Tom Wiggins, NE NE NW section 1-3n-2e, coring at 1,835 feet; Schlossberg & Sigel No. 1 Roddy, SW cor. SE SW section 20-3n-2e, salt water in sand at 1,823-30 feet, shut down for orders; Star Well Syndicate, NE cor. SW NE SW section 28-4n-1e, in saturated Benoist sand at a total depth of 1,441 feet and waiting for casing; J. I. Staley Drilling Co. No. 1 Public School, SW cor. SE NE SW section 28-4n-1e drilling at 1,201 feet; same operator's, No. 1 Belcher, CSL NW NW SE section 28-4n-1e, shut down at 61 feet; J. I. Staley Drilling Co. No. 1 Ballentine, NE cor. SW SW section 28-4n-1e, ready to start; Thomas H. Roberts and others No. 1 Purcell, CNL SW NW SE section 28-4n-1e, shut down for repairs at 1,150 feet; Reynolds No. 1 Eager, NW SE SW section 28-4n-1e, at a total depth of 1,435 feet; Pugh & Broadus No. 1 Belcher, SW NW SE section 28-4n-1e, in saturated Benoist sand at 1,445-54 feet; Kirk D. Holland No. 1 Wasem, SE cor. NW SE SW section 28-4n-1e salt water in Benoist sand at 1,459-62 feet, shut down for orders; same operator's No. 1 Jennings, SE SE SW section 28-4n-1e, shut down for repairs at 71 feet; H. & H. Drilling Co. No. 1 Hill, NE cor. SE SW section 28-4n-1e Benoist sand at 1,451-59 feet, plugged back to 1,456 feet, 500 feet of fluid in hole, one-third salt water, shut down for orders; Hempen & Burgess No. 1 Rogier, NW cor. SE section 28-4n-1e, Benoist sand at 1,431-41 feet, cleaning out; J. Hausman, No. 3 Mojonnier, SW cor. NE SW section 28-4n-1e, drilling at 157 feet; F. Fredericks and others No. 1 Hill, NE cor. SE SW section 28-4n-1e, bailing oil at total depth of 1,451 feet; same operator's No. 1 Ballance, SE NE SW section 28, shut down at 1,000 feet for repairs; Cypress Oil & Gas Co. No. 4 Adams, NE cor. SW SW SW section 28, Benoist sand at 1,449½-50 feet, total depth, set 6⅝-inch casing at 1,440 feet, waiting for cement to set; Ray Brown and others No. 1 Eaton, NW cor. SE SW section 28, Benoist sand at 1,445-53 feet, putting on pump; Bivens and others No. 1 Kruse and others, NW SW SE section 28, Benoist sand at 1,445-53 feet; casing trouble; Adams Oil & Gas Co. No. 1-B C. J. Wasem, SW cor. NE NW SW section 28, location; Adams No. 5-A Wasem, NE cor. SW NW section 28 saturated Benoist sand at 1,409-30 feet, cleaning out; Adams No. 3-A Wasem, CEL SE NW section 28, total depth 1,448 feet, fishing; Adams No. 1 Underwood SW cor. SW NE section 28, drilling at 418 feet.

Work in Clay County

In Clay County Pure Oil Co. No. 1 Clay City Banking Co., NW NW NW section 34-3n-8e is a derrick; Pure No. 6 Weller, NW SW NE section 33-3n-8e, cellar and pits; Pure No. 1 E. Weller, SE SW SE section 33-3n-8e, total depth 2,615 feet, plugged back to 2,613 feet, and standing; Pure No. 6 B. Travis, NW NW NE section 33-3n-3e, cellar and pits; Pure No. 4 B. Travis, SE NW NE section 33-3n-8e, drilling at 1,077 feet; and No. 5 B. Travis SE NW NE section 33-3n-8e, rigging up rotary; Pure No. 2 A. Travis NE NW NW section 33-3n-8e, derrick; Pure No. 1 Smith, NE NE SW section 33-3n-8e, St. Genevieve lime at 2,886 feet, sand at 2,939-47 feet, no flow, swabbed 6 hours, lost swab, fishing; Pure No. 2 N. Mosely, SW SE NE section 33-3n-8e, derrick; Pure No. 1 D. L. Mosely, NW SE NE section 33-3n-8e, drilling at 2,936 feet; Pure No. 2 A. L. Mosely, NW NE NE section 33-3n-8e, derrick; Pure No. 1 A. L. Mosely, SW NE NE section 33-3n-8e, drilling at 2,952 feet; Pure No. 3 Bechtel, SE SE NW section 33-3n-8e, location; Wiser Oil Co. No. 6 D. Smith, SW SW NE section 28-3n-8e, drilling at 2,895 feet; Wiser No. 7 D. Smith, NE NE NE section 28-3n-8e, drilling at 2,640 feet; Pure Oil Co. No. 4 Wilkin, NW SE SE section 28-3n-8e, derrick; No. 5 Wilkin, NE NE SE section 28-3n-8e, location; Pure No. 2 Wilkin, NE NE SW section 28-3n-8e, material on ground; No. 3 Wilkin, SW SE SW section 28-3n-8e, rigging up rotary; Pure No. 1 Wilkin, NE NE SW section 28-3n-8e, location; Pure No. 6 Poppe, NW NW SE section 28-3n-8e, sand at 2,975-78 feet, acidized with a 64-bbl. oil load, and swabbed 9 bbls. of oil net in 3 hours; Pure No. 8 Poppe, SW NE SE section 28-3n-8e, drilling at 1,743 feet; Pure No. 10 Poppe, SE NE SE sec-

tion 28-3n-8e, location; Pure Oil Co. No. 1 B. W. Mosely A, SE SE NW section 28-3n-8e, derrick.

Pure Oil Co. No. 7 O. Poppe, SW NW NW section 27-3n-8e sand at 2,978-89 feet, fishing for swab; Pure No. 9 Poppe, NW NW NW section 27-3n-8e drilling at 2,943 feet; Pure No. 3 Chaffin, NW SW SW section 27-3n-8e, location; Pure No. 2 Chaffin, SW NW SW section 27-3n-8e, cellar; J. V. Wicklund No. 1 McCauley, SW SW SE section 23-3n-8e, drilling at 2,636 feet; Wiser Oil Co. No. 8 Smith, SE SE SE section 21-3n-8e, drilling at 1,800 feet; Elmer Hupp and others No. 1 Bemis, SE SE NW section 14-3n-8e, drilling at 2,660 feet; Mammoth Producing & Refining Co. No. 1 Bemis, SE SW SE section 9-3n-8e, derrick; Southern Illinois Petroleum Co. No. 1 Nodaker, NW SE SW section 17-3n-8e, derrick; J. C. Shaffer and others No. 1 Leibke, SE SE SW section 17-3n-8e, rig on ground; Leonard Bros. No. 1 Logan, SE SW NW section 2-3n-6e, rigging up rotary; Pure Oil Co. No. 1 Staley, NW NW SW section 9-2n-8e drilling at 1,615 feet; and No. 2 Staley, SW NW SW section 9, set 7¾-inch casing at 226 feet; Pure No. 1 Hubble, NE SE SE section 8-2n-8e derrick; Gordon Oil Co. No. 2 Carroll, SE NE SE section 8-2n-8e, running surface pipe. Cameron and others No. 1 Seeds, SW cor. SE SE SE section 14-3n-8e, location.

Wildcat Operations

In Edwards County, Leach Brothers were drilling at 1,428 feet in No. 1 A. D. Lee, SW NE SE section 11-1s-10e.

In Bond County, J. M. Huber Corp. No. 1 Kunz, SE NW NW section 11-6n-5w, was drilling at 952 feet and Whitehead and others were drilling at 2,000 feet in No. 1 Pollan, NW SE SW section 26-6n-2w.

In Fayette County Carter Oil Co. was rigged up on No. 1 Meller, CW half NW NE section 12-8n-3e.

In Randolph County Mabee Consolidated Oil Co. and W. A. Delaney were shut down at 1,720 feet in No. 1 Wilson, CE half SE NE section 3-4s-5w.

In Perry County J. H. Forrester No. 1 Fee, CW half SW NW section 5-6s-1w, was at a total depth of 5,130 feet. The crew lost the sand pump in the hole and were drilling on iron.

In Pope County C. O. Whitlock was drilling at 780 feet in No. 1 Anthis, NW NW NE section 12-11s-5e.

In Jefferson County Schlossberg & Sigel were rigged up on No. 1 Schneider, NE cor. SE section 15-1s-1e.

In Jasper County Diamond Halff Oil Co. No. 1 Isley, C NW NW section 24-8n-8e was drilling at 2,110 feet.

In Hamilton County Sunflower Oil and Gas Co. No. 1 Clark, NW NW SW section 32-3s-5e was delayed in starting by lack of water.

In Fayette County John Farrel is shut down at 900 feet in No. 1 Lilly, SE cor. SW SE section 16-8n-3e. Oil Development Co. was rigged up ready to go at No. 1 Vance, SE SE SE section 16-7n-2e.

In Effingham County Faurot, Mitchell & Hazlett No. 1 Haarman NE NW NE section 5-7n-6e, set 10-inch casing at 125 feet.

In Clinton County P. J. Campbell No. 1 Allen, SW SW SE section 21-3n-2w (corrected location) is spudded. Gross, Erling & Murphy No. 1 Everegard, SW cor. NW SW section 22-1n-4w was shut down at 942 feet with a cavey hole. Bell Oil Co. was rigging up machine for No. 1 Maddox, CWL SW SW section 4-1n-3w.

In Washington County, Milliken and others No. 1 Lessman, NW NW NW section 36-1n-2w, was underreaming 8-inch casing to 1,130 feet.

In Shelby County Art Genther has rig up for No. 1 Prosser, CSL SW NE section 25-10n-4e.

In White County Johnston & Spears No. 1 Poorman, NE NW NW section 5-4s-8e, was shut down at 215 feet.

In Jefferson County Dee & Carter No. 1 Harvey Hamilton, NE cor. SW NW section 20-4s-3e, was acidized with 1,000 gallons at 1,424-27 feet and pumped 100 bbls. of salt water. The crew was circulating to ascertain the source of the water.

In Coles County, Gregory & Mechling No. 1 Flotz, NW SW NE section 31-14n-14w, had a hole full of water at 1,097 feet, and the owners were to set packer at 1,069 feet to test the Niagara formation.

In Wayne County A. Bruner was drilling at 2,480 feet in No. 1 Kuyoth, NW cor. section 30-2n-8e. F. R. Washburn No. 1 Acola, NW NE NW section 31-2s-6e, had water at 2,160-2,240 feet, total depth 2,300 feet, and was underreaming 8-inch casing.

In Fayette County Canadian-American Oil Co. No. 1 Poor Farm, SE cor. NW SE section 36-7n-1w, has cellar and pits dug.

In Franklin County Robert E. Markham and others are starting a test in CEL SW SE section 18-5s-3e, and Washburn Petroleum Co. has materials in for No. 1 C. H. Neal, C E half SE SE section 6-5s-4e.

In Wayne County Benedum-Trees, Inc. spudded No. 1 Knapp, SW NW SW section 33-2n-7e.

In Clinton County W. C. McBride, Inc. was moving in machine for No. 1 G. L. Koumerous, approximately in CWL SW SE section 5-1n-3w, and Bartelso Oil & Gas Co. was drilling at 870 feet in No. 2 Schlorman, SW cor. SE SE SE section 5-1n-3w. Santa Fe Oil Co. No. 1 Shipman, CSL SE SE section 4-1n-2w, was drilling at 765 feet.

OHIO FIELDS

LIMA, Ohio, Sept. 13.—Operations continued in the usual trend in Ohio during the past week, with somewhat fewer completions.

In Lorain County, William Dempsey No. 1 Joseph Conrady, section 12, Avon Township, was a dry hole in the Clinton sand at 2,367-69 feet.

In Holmes County, Pure Oil Co. No. 1 Stephen Korns, section 5, Killbuck Township, was also dry in the Clinton at 3,451-89 feet. In section 18, Mechanic Township, Bell Brothers plugged and abandoned No. 5 C. G. Finley in Berea sand at 769-76 feet.

In Ashland County, Mehowa Oil & Gas Co. No. 2 Lee Hanley, section 14, Hanover Township, had first Clinton sand at 2,645-54 feet, with an open flow of 3,200,000 feet of gas. The well was drilled through the second streak at 2,680-90 feet without further pay.

In Stark County, East Ohio Gas Co. No. 1 Harvey Loehr, section 22, Plain Township, gauged 350,000 feet of gas in the Clinton at 4,563-91 feet. The well was shot and shut in with a rock pressure of 1,150 pounds.

In Huron County, Gross and others No. 1 Artemus Robbins, section 1, Townsend Township, made a small show of gas in the lime at 755-833 feet. The well was shut in with a rock pressure of 88 pounds and the gauged open flow was only 5,000 feet of gas.

In Licking County, George Vandergriff No. 1 Beulah Weigle, section 16, Perry Township, was abandoned with only a show of oil in the Berea at 739-44 feet. In

There are more
GENUINE
WILLIAMS
SUPERIOR DROP-FORGED TOOLS
"VULCAN"
CHAIN PIPE TONGS
IN OIL FIELD USE THAN ALL
OTHER MAKES COMBINED
9 SIZES WITH FLAT LINK
OR CABLE CHAIN FOR
PIPE 1/8 TO 18 INCHES
"VULCAN BOLL-WEEVIL"
BREAK-OUT
MAKE-UP
A reversible action Tong. Ideal for flat pipe work and pipe line work; exceptionally efficient in trenches. Four sizes for pipe 3/4 to 12 inches.
WILLIAMS
SUPERIOR DROP-FORGED TOOLS
J. H. WILLIAMS & CO., 75 Spring Street, NEW YORK
Headquarters for: Drop-Forged Wrenches, Carbon and Alloy, Detachable Socket Wrenches, "C" Clamps, Lathe Dogs, Tool Holders, Eye Bolts, Hoist Hooks, Thumb Nuts and Screws, Chain Pipe Tongs and Vises, Etc.
WESTERN WAREHOUSE & SALES OFFICE: CHICAGO — WORKS: BUFFALO, N. Y.

section 14, Licking Township, Licking County, Wehrle Gas Co. No. 2 F. Woolard was abandoned as a dry hole in the Cinnamon shale at 1,350-80 feet.

In the Medina County shallow pool, Ray Grimm No. 7 B. E. Grimm, section 1, Chatham Township, made 8 bbls. of oil in the Berea at 363-409 feet, total depth 415 feet.

In southeastern Ohio, George Kernodle No. 1 J. J. Lanning, section 3, Jefferson Township, Guernsey County, gauged 150,000 feet of gas in the second Berea at 1,124-26 feet. The total depth was 1,134 feet. Only a show of gas was encountered in the first Berea.

In section 13, Olive Township, Noble County, the Ohio Fuel Gas Co. No. 1 Davis & Brown was drilled deeper to the Berea sand at 1,673-88 feet. The well had an open flow of 425,000 feet of gas. In section 24, Center Township, of the same county, Laws & Spangler No. 9 William T. Perry made 2 bbls. of oil after shot in the Buell Run sand at 268-303 feet. In section 6, Jackson Township, Noble County, Barnesville Development Co. No. 1 Leon B. Kapple was shot in the Berea at 1,662-64 feet. After cleaning out, the well gauged 120,000 feet and was making some oil and water. In section 15, Elk Township, Noble County, R. L. Smithberger No. 2 Charles Parks was plugged and abandoned as a dry hole. It penetrated the Peaker sand at 760-805 feet and the Germantown sand at 1,025-85 feet.

In Monroe County, Baker and others No. 2 Thomas Ulrich, section 36, Summit Township, was shot and shut in with an open flow of 150,000 feet in the Berea at 1,775-81 feet. The rock pressure of the well was 176 pounds.

In Washington County, Depuy Brothers No. 1 John H. Stegner, section 20, Liberty Township, gauged 60,000 feet of gas after shot in the second Cow Run sand at 905-1,036 feet. In Lot 37, Salem Township, of the same county, Earl Montgomery No. 4 William Gross heirs made 5 bbls. of oil in the Macksburg 800-foot sand at 847-61 feet. In section 19, Barlow Township, Washington County, McTaggart and others No. 6 D. W. McFarland gauged 120,000 feet of gas in the first Berea at 1,896-1,902 feet.

In Meigs County, Chase and others No. 3 L. F. Harrison, section 3, Rutland Township, gauged 400,000 feet of gas in the Salt sand at 649-64 feet. The well had a rock pressure of 180 pounds. In section 2 of the same township and county, Meigs Development Co. No. 6 Lafayette Romine made 200,000 feet of gas in the Salt sand at 740-46 feet, and approximately 50,000 feet more in the Maxton sand at 829-44 feet. The rock pressure was reported at 200 pounds. In section 26, Lebanon Township, Meigs County, Proffitt and others No. 1 J. A. Smith gauged 104,000 feet of gas in the first Berea sand at 2,032-38 feet, with a total depth of 2,043 feet. In section 27, Salisbury Township, of the same county, Mayer and others No. 4 Pearl D. Hysell made a considerable flow of gas but when shot was drowned out with water and abandoned. The gas flow was from the Salt sand at 654-56 feet. In section 36 of the same township and county, T. W. Bengel No. 5 Albert Heilman was plugged and abandoned as a dry hole in the Maxton sand at 855-966 feet.

In Athens County, J. V. Bowman No. 3 R. A. Smith and others, section 12, Canaan Township, gauged 134,000 feet of gas in the Stray sand at 589-612 feet. The rock pressure of the well was 248 pounds. In section 13, Ames Township, Athens County, Carpenter & Glazier No. 21 J. & J. Smith was abandoned at a total depth of 226 feet. No first Cow Run sand was encountered. In section 29, Rome Township, Athens County, Gibson and others No. 9 J. H. Cunningham was abandoned as a dry hole in the Maxton sand at 998-1,013 feet.

In Hocking County, Charleston Gas Co. No. 1 J. Kepler, section 19, Ward Township, was a dry hole in the shale with a total depth of 2,100 feet. The well made a small show of gas and was shot at 2,046 feet. The shot did not increase production and the well was plugged and abandoned.

WESTERN KENTUCKY

OWENSBORO, Ky., Sept. 13.—Three deep tests are drilling in the Western Kentucky district, one by the South Penn Oil Co. in the Island district in McLean County, and one in the Hawesville district in Hancock County by Tom Galey and others of Owensboro. This area has always been a shallow producing district, but as the big basin underlying central and southern Illinois and southern Indiana extends into this portion of Kentucky there is a possibility of deep production underlying a portion at least of the Western Kentucky fields, and South Penn and Mr. Galey and his associates are out to test it.

In the past week 16 wells were completed in shallow sands, 8 of them dry, five having been gas wells and three oil wells.

Following is the week's report by counties:

Hancock County

Easton district: J. C. Ellis No. 19 Link Richards, 50 bbls., Jackson sand; No. 13 Thelia Richards, spudding in. Moss Oil & Gas Co. No. 3 Nora Richards, drilling 200 feet. W. E. Hupp No. 4 Emma Poole, drilling at 300 feet.

Patesville district: Cumberland Petroleum Co. No. 1 W. C. Arrington, 40,000 feet of gas, Jackson sand, water in Barlow sand. Total depth 645 feet, abandoned.

Hawesville district: T. Galey, and others, No. 1 J. W. Holder, deep test, drilling at 1,150 feet.

Tell City district: Kentucky Natural Gas Co. No. 1 Mrs. Kate Humphries, dry hole through Bethel sand, 778-790 feet.

Floral district: Frank Damron No. 4 T. J. Brown, 794,000 feet of gas, 191 pounds rock pressure, Jackson sand, 498-513 feet; Groverly Oil Co. No. 4 Baker Bros., dry hole through Barlow sand, 615-640 feet; total depth 645 feet.

Ohio County

Fordsville district: V. M. Amsler No. 3 Chas. Downes, dry hole through Jett sand; total depth 395 feet.

Narrows district: Geo. Lavigne No. 1 Joe T. Schultz, dry in Jackson sand; drilling to Barlow sand. Nollem Oil & Gas Co. and others No. 1 C. C. Parks, spudding in; No. 1 Stanley Phillips, moving in; No. 1 Annie Turnham, moving in.

Livermore district: Clark & Snyder No. 3 E. Price, dry hole through Bethel sand, total depth 1,412 feet.

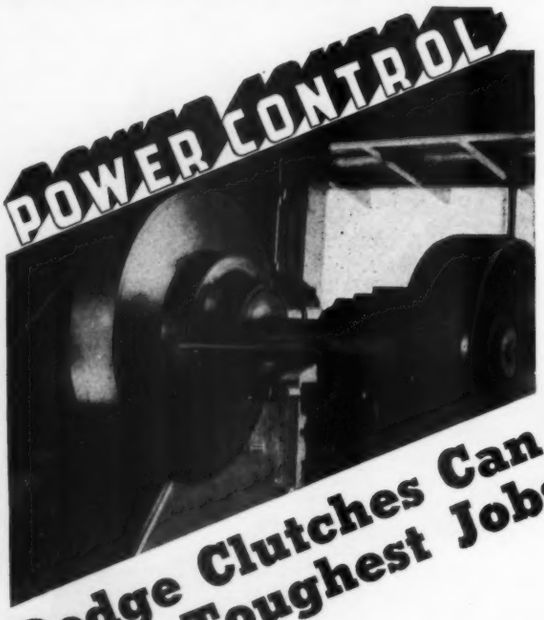
Friendship Church district: A. Teller No. 4 Estill Board, 20 bbls. in Barlow sand. DeHart & Lykins No. 1 A. P. Kelly, drilling at 150 feet.

Taffy district: J. C. Ellis No. 20 Ada Keith, spudding in.

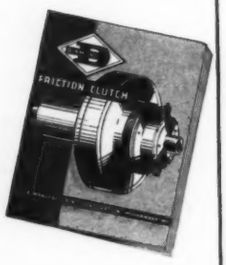
Heflin district: Kentucky Natural Gas Co. No. 4 R. P. Cox, 1,300,000 feet of gas, Jones sand, 1,108-28 feet;

(Continued on Page 272)

DEPENDABLE



Dodge Clutches Can Handle The Toughest Jobs . . .



Dodge Diamond "D" Friction Clutches are efficiently, dependably, and economically adapted to power transmission as well as for application to various types of machinery used in the oil fields. They are ruggedly constructed and capable of handling 100% overload, insuring safety and protection and positive power control under any conditions of service.

Specify Dodge Diamond "D" Clutches for steady, uninterrupted service. Send for copy of Catalog No. A-200.

See the Dodge 20-page section in the Oil Field Composite Catalog

THE Right DRIVE FOR EVERY JOB

DODGE

DODGE MANUFACTURING CORPORATION
MISHAWAKA, INDIANA, U. S. A.

Texas and Louisiana Gulf

By
F. L. SINGLETON

EVANGELINE PARISH'S DEEP TEST IS HIGHLY IMPORTANT

HOUSTON, Tex., Sept. 13.—Continental Oil Co. No. 1 Tate, on the Villa Platte Prospect, northern Evangeline Parish, Coastal Louisiana, reported last week as having cored a sand section showing oil and gas, is scheduled to be tested this week after coring 60 feet of broken sand and shale, carrying oil and gas at 8,970-9,030 feet. Seven-inch casing was cemented on bottom at 9,098 feet, and the test is to be made through perforated casing on the strength of a Schlumberger survey, which is reported to have shown favorable results.

The testing of this wildcat has attracted wide attention and the outcome is expected to renew interest in the entire northern tier of counties where considerable acreage was condemned after shallower tests proved dry. No. 1 Tate is the deepest hole drilled in this area, and it is believed to be bottomed in the Cook Mountain horizon. If productive it will open new pay for the district. The only Cook Mountain production along the upper Gulf Coast was opened this year in Tyler County where Republic Production Co. and Houston Oil Co. completed several good producers.

Villa Platte is a geophysical prospect of 6,000 acres, centering around section 44-3s-2e in the northeastern part of the parish.

Maco Stewart No. 1 fee, which opened production on the Hitchcock Prospect, Galveston County, has been showing a decrease in production and during the past 24 hours flowed only 60 bbls. It was originally completed through perforated casing at 5,132-39 feet for an initial production of 10 bbls. per hour through a quarter-inch choke.

Houston Oil Co. and Republic Production Co. No. 1 Peavy-Moore, in the South Call area, Newton County, made an 18-minute drill-stem test in the Upper Cockfield sand at 6,775-6,927 feet using quarter-inch and three-eighths inch chokes, and recovered two joints of 38-gravity oil, six joints of oily mud and 100 pounds of pressure. It is coring ahead for the sand. The well is located in section 43, H.&T.C. Survey. It is the first production to be opened in the county and the third new field to be opened along the Conroe trend this year.

New Sand Discoveries

In the lower Texas Gulf Coast district new sand discoveries were made at McFadden and Keeran fields in Victoria County and in the Heyser field in Calhoun County. At McFaddin, Transwestern Oil Co. No. 4 J. A. McFaddin was completed at 4,413 feet for an initial production of 114 bbls. in 14 hours through a quarter-inch choke with tubing pressure 125 pounds and casing pressure 550 pounds. This is the first important production to be developed. Of the numerous wells drilled, the majority were high-pressure gas wells and what oil production was developed was short lived. In the Keeran field, Union Oil Co. No. 6 Keeran was scheduled to make a production test after recovering 1,400 feet of pipe line oil on a drill-stem test at 5,593-5,613 feet.

In the Heyser field, Calhoun County, Normandie Oil Co. No. 3 Cook was finaled in a new sand for the largest producer yet completed flowing 29 bbls. per hour through a three-eighths inch choke with tubing pressure 350 pounds. It was completed through perforated casing at 5,583-93 feet after it showed for a dry gasser in the regular production horizon at 5,483-95 feet. It is located in the A. Sisneros Survey midway between the field proper and the north extension area in Victoria County. Offsetting this test, Blanco Oil Co. and Buchanan have rigged up for No. 1 R. B. Morris in the A. Sisneros Survey.

Jay Simmons No. 1 G. H. Alexander extended the Hastings field a half mile north when it flowed 10 bbls. per hour through a quarter-inch choke from a screen setting at 5,970 to 6,060 feet. It is near the highway in the H.T.&B. Survey No. 28.

In the Old Ocean field, Brazoria County, Harrison & Abercrombie were preparing to test No. 1 Christian Larsen, about a mile northeast of production. The hole is bottomed in broken sand and shale showing oil at 10,067 feet, and 7-inch casing has been cemented at 10,050 feet. It is in the Charles Breen Survey.

V. H. Borsodi No. 2 J. Ross, in the southeast extension area of the Friendswood field, southern Harris County, was completed for an initial production of 21 bbls. per hour through a quarter-inch choke, with tubing pressure 650 pounds and casing pressure 900 pounds. It is the fourth oil well in the field. Same operator's No. 1 Berliwitz has been spudded, while Humble Oil & Refining Co. No. 1 Gay is drilling below 5,500 feet.

Much interest was centered on the Clinton field, Harris County, where Stanolind Oil & Gas Co. was running 5¾-inch casing to 4,600 feet, preparatory to making a production test of No. 1 Moody, a half mile northeast of the discovery well. The casing will be cemented on bottom and a test made at intervals where a Schlumberger survey showed favorable results. At 3,215-60 feet the survey showed 35 millivolts porosity and 15 ohms resistivity; at 3,425-42 feet, 35 millivolts and 15 oms resistivity, and at 3,595-3,604 feet, 40 millivolts and 10 ohms resistivity. If productive it will open an entirely new sand for this field, since two previous wells were completed in an unknown horizon below 8,000 feet. Both were completed for high-pressure gas wells.

Hardin Field Extension

In the southwest extension area of the Hardin field, Liberty County, Shell Petroleum Corp. No. 1 Cessna flowed 725 bbls. per day through a quarter-inch choke with tubing pressure 950 pounds and casing 1,275 pounds. Sand was topped at 7,598 feet and the screen setting was made at 7,596-7,608 feet, total depth. An outpost location has been made by Strake Petroleum Corp. for No. 1 Finley on a 198-acre tract, several thousand feet southeast of the Shell well in the A. B. Hardin Survey. Shell Petroleum Corp. is moving rig to No. 1 Cochran, 1,500 feet east of Frazier No. 1 Roberts in the H. B. Johnston Survey.

Possibilities of a deeper sand being found at the Segno field, southern Polk County, were encouraged by the showing of Gulf Oil Corp. No. 8 Wing, which showed 650 pounds of pressure and one joint of distillate on a 10-minute drill-stem test at 5,509-5,521 feet. It is coring ahead below 5,525 feet. The regular production horizon is in the Upper Cockfield sand at approximately 5,100, 5,200 and 5,300 feet.

Northeast of Rockland in Tyler County, Thompson Drilling Co. and J. C. Bonham have rigged a wildcat in the Emiley Smith Survey It is one of several tests which are getting under way throughout the entire Conroe trend.

In the Magnet field, southern Wharton County, Atlantic Refining Co. No. 3-B H. C. Cockburn has been completed for an initial production of 105 bbls. per day through a quarter-inch choke with tubing pressure 435 pounds and casing pressure 150 pounds. Perforations were made in the 7-inch casing at 5,530-34 feet. Peyton Brothers No. 1 Gish failed to flow when tested and the operators are installing flow valves.

Rowan Drilling Co.'s first attempt to establish shallow production at the Danbury dome, Brazoria County, failed. On drill-stem test at 2,300-10 feet it showed salt water and another test is scheduled to be made at around 1,900 feet.

In the Garwood area, southern Colorado County, Coyle & Concord were testing No. 2 May South, and at the close of the week it was flowing wash water and drilling mud with 100 pounds of gas pressure but was not showing any oil. The hole is bottomed in sand at 6,034 feet. A drill-stem test at 6,027-34 feet showed 500 pounds of working pressure and 30 feet of distillate-cut mud.

New Producing Horizon

A second producing horizon for the Timbalier Bay Prospect, Lafourche Parish, Coastal Louisiana, was indicated by Gulf Oil Corp. No. 3 State, which showed 2,000 feet of pipe line oil on a drill-stem test at 6,958-70 feet. It is being drilled deeper in search of a third sand. This is a wildcat, southwest of the Marchland dome in section 36-23s-21e. A previous test at 6,846-49 feet showed 1,000 feet of 32-gravity oil.

Pan American Production Co. No. 1 Veeder-Hunt opened a shallow sand for the Charenton field, St. Mary Parish, when it flowed 10 bbls. per hour through a quarter-inch choke from perforations at 3,935-60 feet. Same company's No. 1 Veeder was plugged back from a total depth of 9,462 feet to 2,615 feet and 7-inch casing cemented at 2,615 feet to test sand at 2,589-95 feet. Production heretofore has been confined to 4,900 and 7,100-foot sands. Both wells are located in section 30-13s-10e.

Jennings Area

In the South Jennings field, Jefferson Davis Parish, Loffland Brothers have made location for No. 1 Isaac Fontenot in the SE cor. of section 16-10s-3w, just southeast of Stanolind Oil & Gas Co. No. 1 Calcasieu National Bank that was completed for a distillate producer. The acreage on which the well is located was farmed out by Stanolind Oil & Gas Co.

On the west flank of the Jennings field, Acadia Parish, several wells were scheduled to be completed. Frank W. Bennett No. 1 United Brethren Church, section 41, is bottomed in oil sand at 6,986 feet. Cosmo Petroleum Co. No. 1 M. E. Crusel was coring oil sand at 7,154 feet. M. P. Omeara's No. 1 McFarlain was standing cemented at 6,909 feet with the production string set at 6,815 feet, and Superior Oil Co. No. 2 A. P. Moresi had topped oil sand at 6,620 feet and the hole bottomed at 6,829 feet was being reamed preparatory to running casing.

Crusader Petroleum Co. No. 1 Miller Brothers, on the northeast flank of the Edgerly field, Calcasieu Parish, was scheduled to be tested. The hole is bottomed at 6,082 feet, with 7-inch casing cemented at 6,067 feet. Sand showing oil was topped at 6,078 feet. Location is in section 27-9s-11w.

At Big Lake, Cameron Parish, Union Sulphur Co. No. 1 Henry Hebert, section 18, was perforated at 9,040-60 feet, and is flowing 100 bbls. of 38 gravity oil per day through a quarter-inch choke. Same company's No. 1 P. D. Hebert is scheduled to be drilled deeper. It showed salt water on several drill-stem tests below 8,300 feet.

Union Sulphur Co. No. 1 T. R. S. Farms, 1 mile northwest of the discovery well of the South Roanoke field, Jefferson Davis Parish, has been plugged back to 8,600 feet and is scheduled to be tested through perforated casing at 8,599-8,603 feet.

Mississippi Location

One wildcat location was made last week in northern Mississippi and one in southern Mississippi. In Yalabousha County, northern part of the state, Acme Holding Co. was rig up for No. 1 S. D. Boyle, NW NW sec. 33-25n-7e; and in Franklin County, Fred E. Courson was moving in for No. 2 Homochitto Lumber Co. near the center section 18-5n-3e, for a proposed 5,000-foot test.

Michigan Field Report

By O. C. PRESSPRICH

2,500-BARREL WELL IN NORTH POOL OF THE BUCKEYE AREA

SAGINAW, Mich., Sept. 13.—Despite the Labor day holiday shortening the working week, Buckeye Township of Gladwin County continued last week to increase its oil production in all sections with several favorable producers, but with a possible dry hole looming in proved territory of the south (Oard) pool. Arenac County drew attention with three dry holes and one fair producer.

While oil wells in both the north (Wicklund) and south (Oard) pools continued to come in, operators showed interest in an apparently dry effort in section 36, near the south end of the township and on the southern border of the south pool. A dry hole in any part of Buckeye is as yet an unusual happening, especially inside proved territory.

The well attracting attention is Turner Petroleum Co. No. 1 McMahon in the SE SW SW of section 36. The well was being completed late in the week with a poor show of oil, and while plugging and abandonment orders had not been issued, it was expected that the effort would be labeled a dry hole. Two locations south and one east of the Turner-McMahon well, a dry hole was recorded this past week in Tobacco Township of Gladwin County. It was Rex Oil & Gas Co. No. 1 Griffin, NW NE NE of section 1. The dry hole is a southeast diagonal offset of Turner's well in section 36 of Buckeye Township. Other Tobacco Township wells have logged favorably.

The week was devoid of startling developments, although considerable activity was reported in all sections of the field toward preparing to drill in both tested and untested territory.

North (Wicklund) Pool

Topping production honors of the past week in the north pool was Beaver Trust No. B-3 State in the SE NE NE of section 14, which was gauged at 2,507 bbls. in 24 hours. The well was bottomed at 3,627 feet. It is regarded as one of the best in the north pool by the proration referee. The well is two locations south and three east of the Wicklund discovery well in section 11.

Another 1,000-bbl. initial producer was chalked to the credit of the north pool the past week in Sun Oil Co. No. 1 Card, SE SW NW section 10, a western outpost for the north pool. Development of this well added to the belief that westward extension of the north pool will be both feasible and profitable. A diagonal offset, D. F. Jones No. 2 Bonnigot, also in section 10, was cased and ready to drill in. Sun Oil Co. was preparing to acidize its No. 5 Strohkirch, NW SW SW of section 3, which made a head of 45 bbls. after swabbing, and then ceased flowing.

Charles W. Teater acid treated the No. 6 Adamets in the SE SW SW of section 12, and received a reaction of 600 bbls. daily at a total depth of 3,638 feet.

At Rex Oil & Gas Co. No. 3 Jacob, SW SE NW of section 11, where operators recently set a new record of 42 days fishing for a lost tool on top of the Dundee, labor was rewarded with a 600-bbl. daily flow after acidizing.

Fletcher & Rathburn No. 1 State in the NE NE SW of section 14 flowed at 50 bbls. daily after acid.

Among the wells in the north pool expected in momentarily are Wicklund Development Co. No. 3-K State in section 11 and Cryden & Rowmor No. 3 Shaffer in the SW NE SW of section 12.

South (Oard) Pool

With only three completions in the south pool the past week, together with a possible dry hole, operators continued to ponder the showing of Harold J. Hand No. 1 Smart in Bentley Township, about 10 miles southeast of the Oard pool, and in the extreme south part of Gladwin County. The Oard producers failed to disturb the interest in the Bentley Township well. Mystery was added to the well when no move was made to acidize, although it logged a good showing and had held interest for two weeks.

Top production honors of the week went to F. O. Whitelaw No. 3 Fritzwater in the NW SE SE of section 26, a northwestern development of the south pool. The well was reported at 30 bbls. an hour initial and better than 700 bbls. daily. Gordon Oil Co. No. 1-C State in the NW NW SE of section 36 developed a 200-bbl. natural production, which was considered sufficient without acid. Rex Oil & Gas Co. completed its No. 3 Hall in the NW NE NE of section 35 for a daily natural of 250 bbls.

Turner Petroleum Co.'s well in section 36 was being watched as a dry prospect in the midst of favorable producers, and if dry will be the first in the southern pool proper.

Arenac County

Arenac County ended the week with a record leaning heavily to dry holes, with one favorable completion on the southern tip of the field being the only bright spot against three dry ones.

W. M. Dannemiller made the strike in his No. 1 Swaffield in the NE SE SW of section 10, Clayton Township. The well came in at 100 bbls. after acid. It is the most southern producer in the field.

Among the efforts to be plugged and abandoned was McClanahan Oil Co. No. 1 Oldham, in the SW SW SE of section 31, Richland Township. The well recorded a favorable show, but failed to absorb the acid shot. Weber Oil Co. No. 2 Helein, in the SE SE SE of section 3, Richland Township, an offset to two producers and one dry hole, failed to rate commercially after acid, and Fletcher & Leman abandoned their No. 1 Mills Estate in the center of the SE quarter of section 36 after a small show failed to develop commercial possibilities.

Isabella County

Two oil wells were added to the Sherman-Broomfield pool this past week, while two other wells were expected in a few days. Pure Oil Co. charted the two finished producers at its No. 5 Latham in the NE SW SE of section 33, Sherman Township, which initialed 270 bbls. daily from the Monroe at a depth of 3,650 feet, and its No. 1-B R. J. Embrey in the NW NW NW of section 3, Broomfield Township, with 150 bbls. daily initial.

Two tests drilling in the Monroe limestone and expected in soon include McClanahan Oil Co. No. 4 Beutler, SE NE SW of section 34, and Sherman & Rowmor Corp. No. 4 Leiter, SW NE SW of section 33, Sherman Township. Logs show favorably for both wells.

Tuscola County

Persistent in the belief Tuscola County offers potentialities as an oil field, though frequent tests over the past 25 years have found nothing but dry holes, two new tests are being started in the county. One is in section 8, Kingston Township, near Wilmot, and the other on the Boyce farm, section 24, Wisner Township. A minor showing of oil was found a year ago in a test near the Boyce farm.

Deepening of the Dalrymple well in Arbela Township, which encountered salt water in the Dundee formation at a depth of 2,570 feet, has been decided upon and drilling has been resumed.

Wildcatting Continues

Wildcatting continues vigorously over a wide area of Michigan, with test locations dotting the state's lower peninsula from its southern boundaries to the Straits of Mackinac, and with the past week adding four new tests in unproved areas. No list of drilling permits this year has been free of wildcats as operators attempt to confirm the beliefs of geologists that only a small portion of Michigan's petroleum deposits have been discovered.

Among the past week's four wildcat permits is one for a location southeast of St. Johns, in section 36, Bingham Township, Clinton County. In western Michigan, Newaygo County again is scheduled for exploration, with Mid-States Corp. preparing a test in section 7, Barton Township. The location is about a mile south of a previous dry hole.

Bay County, which has been drawing the attention of wildcatters throughout the summer, but with no success, is due for another test when Charles E. Weller puts materials on location for No. 1 Josephine Dewyer in section 20, Garfield Township. Montcalm County also has one wildcat in the week's list, in section 31, Sidney Township, on the Hans C. Hansen farm. The location is a mile and a half away from the nearest dry hole. In Montcalm, Wiser Oil Co. is drilling a gas test on the extreme eastern edge of the producing Tri-Township field. It is in section 1, Belvidere Township.

Of the 13 Buckeye Township, Gladwin County, permits issued the past week, perhaps the most important test is No. 1 Cody Smith of Rex Oil & Gas Co. in section 35. It is one location north and three west of Rex No. 1 Arkwright producer on the east edge of the Little Cedar River. Production from this test would indicate confirmation of a large sector to the west and south of the Buckeye district's Oard pool.

Michigan Crude Oil Runs

Estimated daily average for August:

Pool—	Wells	Runs
Porter-Yost	430	10,966
Greendale-Chippewa	277	1,992
Geneva-Midland	4	30
Vernon-Leaton-Denver	98	1,995
Sherman-Isabella	33	5,973
Crystal-Montcalm	99	1,320
Home-Edmore	8	105
Winfield-Montcalm	1	9
Beaverton	25	299
Buckeye-Wicklund-Oard	214	21,087
Ogemaw	199	2,731
Clayton-Arenac	30	4,061
Saginaw	57	39
Birch Run	25	89
Dundee-Monroe	3	28
Allegan County	26	879
Muskegon	95	187
Total Michigan	1,624	51,790

Bradford Gusher Increases

BRADFORD, Pa., Sept. 13.—The Niagara Oil Co. No. 1 Slivertown on Music Mountain, 9 miles south of Bradford, which came in producing over 1,200 bbls. a day from the second Bradford sand has been shut in since September 9. It had been drilled deeper in the sand and produced as much as 120 bbls. an hour for a two-hour period. Preparations were being made to tube the well.

Company officials have expressed surprise that the well has kept up such a large production. The belief is expressed in some quarters that the pay is the same as that opened with a gusher well about 37 years ago by L. E. Mallory and others near Marshburg, which lies several miles west and south from the Niagara's well.

California Field Report

By
L. P. STOCKMAN

GREELY FIELD IS EXTENDED; DEEP ZONE IN WILMINGTON

LOS ANGELES, Calif., Sept. 13.—Standard Oil Co. extended the productive limits of the Greely field of Kern County by completing No. 11-7 Kern County land in section 20-29-26, flowing 3,570 bbls. of clean 51.8-gravity oil and 48,000,000 feet of gas per day from 7,815 feet. This well, which is producing from the gas cap in the upper member of the Greeley zone, will probably be deepened in the near future and the gas cap blanked off. It is the most easterly producer in the field and is about 1 mile east of the discovery well.

Standard Oil Co. has completed seven producing wells in the Greely field and, while all have registered large initials, the company is only producing a very small part of the potential. No. 11-7 Kern County land indicates that the field may greatly exceed 1,000 acres. Standard Oil Co., which controls all of the productive acreage, has completed wells in sections 19, 20 and 30 and will determine the possibility of securing production in section 18 within a few weeks as No. 11-8 Kern County land is already drilling below 6,500 feet. The latter well is two locations north of No. 11-5 Kern County land in section 19-39-26 and should result in commercial production. The southernmost part of section 17 should also prove productive, as Nos. 11-3 and 11-7 are along the northern part of section 20, and it is quite possible that the northern part of section 29 may also prove productive, as No. 12-1 Kern County land in section 30-29-26 and No. 11-6 in the southern part of section 20 have both been completed as commercial producers.

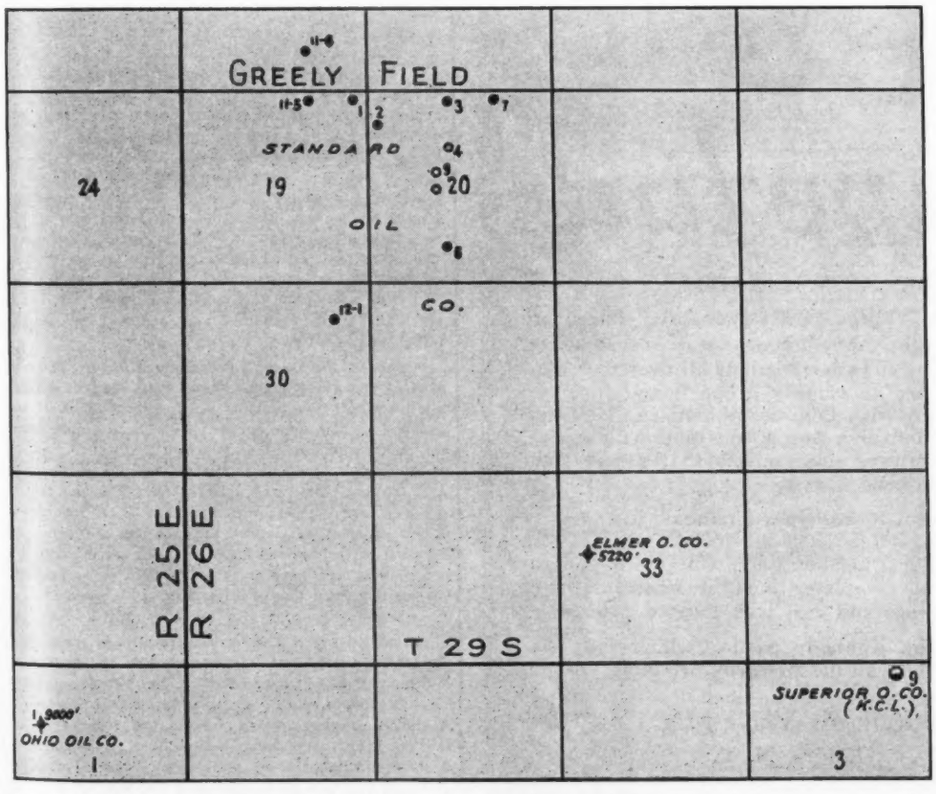
The excellent wells were completed in the Mountain View field of Kern County, both in section 9-31-29, and these together with Mohawk Petroleum Co. No. 5 Earl Fruit, a recent completion in the eastern half of the field, should result in additional drilling within a few weeks. North American Consolidated No. 1 Tupman was brought in flowing 1,480 bbls. of clean 28.3-gravity oil and 520,000 feet of gas daily, and No. 2 Perrel of P. H. Greer, Inc., was completed, flowing 2,225 bbls. of clean 25.3-gravity oil and 460,000 feet of gas per day. No. 1 Tupman was bottomed at 5,554 feet and is flowing through a 36/64-inch bean under a tubing pressure of 320 pounds and a casing pressure of 550 pounds. No. 2 Perrel, bottomed at 5,711 feet and finished with 274 feet of 6⅝-inch liner including 216 feet of 120-mesh screen, was brought in flowing through a 40/64-inch bean and shows a pressure of 300 pounds on the tubing and 500 pounds on the casing. No. 1 Perrel of P. H. Greer, Inc., is standing cemented on top of the pay at 5,335 feet, with present bottom in oil sand at 5,502 feet and should be ready for a production test within a few days. Barnsdall Oil Co. should also have a new completion this week, as drilling operations have been concluded on No. 1 Nighbert in section 19-30-29 at 4,840 feet and the hole finished with 368 feet of 4¾-inch liner, including 346 feet of perforated landed at 4,839 feet.

TANKER SHIPMENTS FROM LOS ANGELES TO DOMESTIC AND FOREIGN PORTS

	September 2		August 26			
	Total this week	Daily average	Total last week	Daily average	This year to date	Same time last year
Intercoastal-domestic:						
Crude oil	.....	.....	.....	.....	60,038	.....
Diesel and gas oil	.....	.....	.....	.....	176,726	151,541
Gasoline	124,892	17,842	.....	.....	2,836,281	4,630,645
Kerosene	.....	.....	.....	.....	328,907	888,702
Foreign exports:						
Crude oil	246,277	35,182	259,405	37,058	9,723,745	6,484,947
Fuel oil	339,549	48,507	344,893	49,270	9,726,665	6,775,846
Diesel and gas oil	470,329	67,190	180,248	25,750	5,548,192	3,966,891
Gasoline	437,388	62,484	12,989	1,856	5,779,668	4,911,864
Kerosene	.....	.....	12,552	1,793	1,589,462	1,042,525
Other unfinished oil	.....	.....	.....	.....	849,163	132,908
Coastwise-domestic:						
Crude oil	76,074	10,868	212,169	30,310	3,159,325	4,418,992
Fuel oil	515,171	73,596	315,294	45,042	10,478,930	6,855,316
Diesel and gas oil	67,152	9,593	7,514	1,073	1,445,475	854,941
Gasoline	455,891	65,127	167,352	23,907	10,553,419	8,666,440
Kerosene	.....	.....	4,461	637	272,401	137,977

TANKER SHIPMENTS FROM SAN FRANCISCO TO DOMESTIC AND FOREIGN PORTS

Intercoastal-domestic:						
Diesel and gas oil	.....	.....	.....	.....	152,932	.....
Gasoline	.....	.....	.....	.....	25,778	227,419
Asphalt	.....	.....	.....	.....	278,026	198,297
Lubricants	.....	.....	.....	.....	22,472	38,131
Foreign exports:						
Crude oil	.....	.....	.....	.....	1,957,468	2,228,219
Fuel oil	37,482	5,355	83,427	11,918	1,554,395	1,931,981
Diesel and gas oil	15,160	2,166	179,987	25,712	2,239,528	1,334,870
Gasoline	.....	.....	219,005	31,286	3,632,308	2,425,429
Kerosene	.....	.....	.....	.....	683,076	529,323
Lubricants	.....	.....	.....	.....	425,740	244,326
Other unfinished oil	.....	.....	.....	.....	.....	90,923
Coastwise-domestic:						
Fuel oil	145,277	20,754	198,528	28,361	4,406,822	4,578,912
Diesel and gas oil	41,734	5,962	40,369	5,767	777,459	480,840
Gasoline	227,027	32,432	168,003	24,000	3,417,080	3,359,566
Kerosene	.....	.....	.....	.....	.....	102,798



Standard Oil Co. No. 7 in section 20-29-26, com pleted a few days ago, is the most easterly producer in the Greely field of Kern County. Union Oil Co. No. 1-34 K.C.L., about 4 miles northwest of field, is down 10,460 feet in oil sand, and Superior Oil Co. No. 9 K.C.L., is drilling southeast of the field

Santa Maria Valley

Union Oil Co., in completing No. 2 Russell, flowing 1,089 bbls. of relatively clean 17.3-gravity oil, has the distinction of bringing in the first large flowing well in the west side extension of the Santa Maria Valley field. No. 2 Russell, in section 21-10-34, which is flowing through a 40/64-inch bean under 130 pounds pressure on the tubing and 420 pounds on the casing, found the top of the Franciscan basement at 4,457 feet, and the hole was finished with 492 feet of 6⅝-inch liner, including 467 feet of perforated, landed at 4,452 feet. No. 2 Russell is one of the best producers in the west extension of the Santa Maria Valley field, discovered by Union Oil Co. when No. 1 O'Donnell was completed several months ago. Union's No. 4 Battles, an offset to No. 1-19 Enos in the northeastern end of the field, has been completed pumping 55 bbls. of 16.3-gravity oil per day from 2,709 feet. This well, which has just been finished, shows a high water cut and may be worked over unless the amount of water is substantially reduced within the next few days. Union's No. 1 Cook, a southeasterly outpost in the Adam or older section of the field, has been completed pumping 217 bbls. of 14.9-gravity oil per day

STANDARD OIL CO. OF CALIFORNIA AND UNION OIL CO.

Crude oil prices at the well effective June 22, 1936

Gravity—	Signal Hill (Long Beach)	Seal Beach	Alamitos Heights	Huntington Beach	Inglewood	Playa del Rey	Olinda-Brea Canyon	Athens-Rosecrans	Dominguez	Elwood Terrace	Torrance	Richfield	Whittier E. Coyote (La Habra)	Montebello	W. Coyote Hills	Santa Fe Springs	Mountain View	Elk Hills Buena Vista Hills Vinton-Sunset Lakeview Area	Lost Hills	Coalinga	Wheeler Ridge	Kettleman Hills	Santa Paula*	Orcutt*
14-14.9	$.80	$.79	$.74	$.78	$.79	$.80	$.76	....	....	....	$.80	$.76	$.76	$.77	$.78	....	....	$.70	$.70	$.70	....	....	$.70	....
15-15.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	....
16-16.9	.80	.79	.74	.78	.79	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.70	$.70
17-17.9	.80	.79	.74	.78	.81	.80	.76	....	....	....	.80	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.71	.70
18-18.9	.80	.79	.74	.78	.84	.80	.78	....	....	....	.82	.76	.76	.77	.78	....	....	.70	.70	.70	....	....	.73	.72
19-19.9	.82	.79	.74	.82	.87	.84	.81	....	....	....	.85	.76	.78	.77	.78	....	$.70	.74	.74	.71	$.76	....	.75	.74
20-20.9	.85	.79	.74	.85	.90	.88	.84	....	....	....	.88	.78	.82	.77	.80	....	.70	.78	.78	.72	.70	....	.77	.77
21-21.9	.88	.79	.74	.89	.93	.93	.88	....	....	....	.91	.80	.85	.77	.84	$.78	.73	.82	.82	.74	.70	....	.79	.80
22-22.9	.92	.82	.74	.92	.96	.98	.92	....	....	....	.93	.84	.89	.79	.88	.78	.77	.87	.86	.78	.72	....	.82	.83
23-23.9	.95	.86	.77	.96	.99	1.02	.96	$.84	$.79	....	.96	.88	.93	.82	.92	.78	.80	.92	.90	.82	.76	....	.85	.86
24-24.9	.99	.91	.80	1.00	1.02	1.06	.99	.88	.81	....	.99	.91	.96	.85	.96	.82	.84	.97	.94	.86	.79	....	.87	.88
25-25.9	1.03	.95	.82	1.03	1.05	1.11	1.03	.93	.83	....	1.02	.95	....	.89	.99	.86	.88	1.01	.98	.90	.83	....	.90	.91
26-26.9	1.06	1.00	.85	1.07	1.09	1.16	1.06	.98	.86	....	1.05	.98	....	.92	1.03	.90	.91	1.06	1.02	....	....	....	.92	.93
27-27.9	1.10	1.05	.88	1.11	1.12	....	1.10	1.03	.88	....	....	1.02	....	.96	1.06	.95	.95	1.10	1.06	....	....	....	.95	....
28-28.9	1.14	1.10	.90	1.14	1.15	....	1.14	1.07	.90	....	....	1.06	....	.99	1.10	.99	.99	1.15	1.10	....	....	....	.97	....
29-29.9	1.17	1.15	.93	1.18	1.18	F.O.B.	1.17	1.12	.93	....	....	1.09	....	1.03	1.14	1.03	1.02	1.20	1.14	....	....	....	.99	....
30-30.9	1.21	1.19	.95	1.22	1.21	our	1.21	1.17	.95	F.O.B.	....	....	....	1.07	1.17	1.08	1.06	1.25	1.18	....	....	....	1.01	....
31-31.9	....	....	....	....	1.24	Pipe	1.24	1.22	.97	Ship	....	....	....	1.11	1.21	1.12	1.09	1.29	....	....	....	....	....	....
32-32.9	....	....	....	....	1.27	Line	1.27	1.27	1.00	....	....	....	....	1.14	1.25	1.16	1.13	1.34	....	....	....	....	....	....
33-33.9	....	....	....	....	....	....	....	1.32	....	$1.28	....	....	....	1.18	1.28	1.20	1.17	1.38	....	....	....	$1.19	....	....
34-34.9	....	....	....	....	....	....	....	1.37	....	1.32	....	....	....	1.22	1.32	1.25	1.20	....	....	....	....	1.23	....	....
35-35.9	....	....	....	....	....	....	....	1.42	....	1.35	....	....	....	1.25	....	1.29	....	....	....	....	....	1.27	....	....
36-36.9	....	....	....	....	....	....	....	1.46	....	1.39	....	....	....	1.29	....	1.33	....	....	....	....	....	1.31	....	....
37-37.9	....	....	....	....	....	....	....	1.51	....	1.43	....	....	....	1.32	....	1.37	....	....	....	....	....	1.35	....	....
38-38.9	....	....	....	....	....	....	....	1.56	....	....	....	....	....	1.36	....	1.42	....	....	....	....	....	1.39	....	....
39-39.9	....	....	....	....	....	....	....	1.61	....	....	....	....	....	1.40	....	....	....	....	....	....	....	1.43	....	....
40-40.9	....	....	....	....	....	....	....	1.66	....	....	....	....	....	1.43	....	....	....	....	....	....	....	....	....	....

Newhall, McKittrick, Kern River, Kern Front and Round Mountain, 70 cents for all grades. *Posted by Union Oil Co. Same company's Brea Canyon schedule stops at $1.14 for 28 degrees and over, and Belridge and Lost Hills schedule stops at $1.32 for 37 degrees and over.

from 3,770 feet after the hole had been carried down to 6,710 feet in search of deeper productive zones and plugged back to the completion depth. Production of this well showed a rather high water cut, indicating a possibility that the cement plug put in bottom may not be entirely effective. No. 1 Rosenbloom in section 25-10-34, a joint project of Hancock Oil Co. and R. R. Bush Oil Co., was completed pumping 515 bbls. of clean 17.1-gravity oil per day from 5,067 feet and the crew was moved to No. 1 Wylie in the same section. Ohio Oil Co. is drilling No. 1 Moretti in section 21-10-34 at 4,060 feet. Top of the Monterey was logged at 3,745 feet and cores showed extreme faulting at 3,765-3,840 feet with dips ranging as high as 80 degrees. The company has, however, staked location for No. 2 Moretti and is expected to begin rig construction in the near future.

Wilmington

Royalty Service Corp. has proved the existence of a deep zone in the town lot area in the western end of the Wilmington field, but its No. 842-2 Gilmore did not appear impressive as it failed to result in a sustained flow and necessitated installation of a compressor. This well was carried down to 5,775 feet but was subsequently plugged back to 5,380 feet and the hole finished with an 8⅝-inch combination shutoff at 5,080 feet and a 6⅝-inch liner, including 300 feet of perforated landed on top of the cement plug at 5,380 feet. No. 842-2 Gilmore was completed flowing by heads at the rate of 100 bbls. of 25.1-gravity oil per day, but production should be increased to about 300 bbls. per day when the compressor is put in operation. General Petroleum Corp., discoverer of the Wilmington field, encountered this deep zone in the central fault block a few months ago is drilling No. 3 Ford. This well tested out an interval of approximately 1,000 feet of stages and found the entire measure commercially productive. Royalty Service Corp., in its No. 842-2 Gilmore in the town lot area, is only producing from the uppermost portion of the Ford zone and may at a later date also find the lower part of the interval productive. Output of the well showed a high water cut indicating a possible water problem.

Union Pacific Railroad Co. No. 4, bottomed at 3,522 feet, is completed, producing from both the Terminal and Ranger zones, but production from the latter horizon has not yet cleaned up and was still flowing to sump at last reports. This new well has an 8⅝-inch liner hung at 3,041 feet which carried perforations at 2,734-3,009 feet and was cemented through perforations at 2,717 feet. The lower portion of the hole was finished with 491 feet of 6⅝-inch perforated liner landed on bottom and cemented through perforations at 3,091 feet. This well was brought in flowing 345 bbls. of clean 17.9-gravity oil daily but is building up. Union Pacific No. 20, another multiple zone completion, was bottomed at 4,087 feet and brought in flowing 485 bbls. of clean 19.8-gravity oil per day. The hole was finished with an 8⅝-inch liner hung at 3,575 feet. It carried perforations at 3,200-3,553 feet and was cemented through perforations at 3,193 feet. The lower part of the hole was finished with 526 feet of 6⅝-inch liner, including 486 feet of perforated landed on bottom and cemented through perforations at 3,601 feet.

Union Pacific No. 42 was completed flowing 560 bbls. of clean 18.9-gravity oil per day from 3,614 feet, producing from both the Ranger and Terminal zones. It was finished with a combination liner. The 8⅝-inch carrying perforations at 2,716-2,899 feet, 2,929-3,049 feet and at 3,089-3,213 feet and cemented through perforations at 2,710 feet, was hung at 3,234 feet. The 389 feet of 6⅝-inch carrying perforations at 3,299-3,477 feet and at 3,497-3,614 feet was landed at 3,614 feet and cemented through perforations at 3,293 feet. The same company's No. 43 was completed flowing 190 bbls. of 14.6-gravity oil per day from the Terminal zone with production of the Ranger zone going into the sump until it cleans up.

In addition to No. 842-2 Gilmore already mentioned, Royalty Service Corp. completed No. 16-7-2 flowing 255 bbls. of 17.8-gravity oil daily, No. 4-B Nelson flowing 391 bbls. of relatively clean 16.6-gravity oil and No. 2 Pacific Electric flowing 310 bbls. of 16.5-gravity oil cutting 6 per cent daily. No. 16-7-2 was bottomed at 3,120 feet while No. 4-B Nelson was finished at 3,499 feet and the hole completed with 783 feet of 6⅝-inch liner carrying perforations at 2,762-2,806 feet, 2,876-2,966 feet, 3,005-3,135 feet and at 3,215-3,499 feet. No. 2 Pacific Electric bottomed at 3,624 feet and finished with a 6⅝-inch liner carrying perforations at 2,907-3,077 feet and at 3,334-3,624 feet, was cemented through perfora-

Valves *for pipe lines*

KENNEDY pipe line valves have thoroughly proven their sturdiness, ease of operation and lasting reliability in installations all over the country. They are generously proportioned in every detail with massive bodies and flanges that resist distortion from pipe line strains and with strong, efficient operating mechanisms that assure tight closure and quick release.

Other Kennedy Valve types for the oil industry include 400-lb., 700-lb., 1000-lb., 1600-lb. and 2500-lb. test gate valves, together with valves for general service; and complete lines of malleable iron screwed fittings and cast iron flanged fittings.

Write for the Kennedy catalog which fully describes and lists all the Kennedy products.

The Kennedy Valve Mfg. Co.
Elmira, N. Y.

KENNEDY
VALVES-PIPE FITTINGS-FIRE HYDRANTS

tions at 2,907 feet. Selegna Oil Co. completed a good well early in the week when No. 8 Wilmington was brought in flowing 658 bbls. of very clean 18.6-gravity oil per day from 3,605 feet. This new producer was finished with 680 feet of 6⅝-inch liner including 655 feet of perforated opposite the productive oil zone.

No. 1 Norris Community of Pacific Western Oil Co. has been completed flowing 390 bbls. of relatively clean 14.6-gravity oil daily from the upper zone at 2,918 feet after the hole had been finished with 353 feet of 8⅝-inch liner including 321 feet of perforated landed at 2,912 feet and a 6⅝-inch flow string with a packer at 2,504 feet. The well is flowing through a 31/64-inch bean and shows a tubing pressure of 80 pounds and a casing pressure of 250 pounds. Packard Oil Co. No. 1,481-1 upon completion at 3,602 feet tanked 368 bbls. of 16.2-gravity oil cutting 4 per cent during the initial 24-hour period and appears to be holding up in good shape. The well was brought in flowing through a five-sixteenths inch bean and shows a pressure of 210 pounds on tubing and 860 pounds on casing. Bankline Oil Co. completed No. 3 Watson Seven flowing 274 bbls. of comparatively clean 17.9-gravity oil per day from 3,420 feet. The hole was finished with 299 feet of 6⅝-inch liner including 293 feet of perforated and the well is flowing through a 20/64-inch bean under a tubing pressure of 125 pounds and a casing pressure of 425 pounds. D. D. Dunlap No. 3 Wilmington was completed flowing 332 bbls. of clean 17.2-gravity oil per day through a 24/64-inch bean from 3,575 feet and shows tubing and casing pressures of 360 pounds and 460 pounds respectively. Wilton Oil Co. No. 1-W, bottomed at 3,701 feet, was brought in pumping 228 bbls. of very clean 16.2-gravity oil daily after the hole had been finished with 770 feet of 7-inch liner including 747 feet of perforations opposite the productive zone. No. 1 Santa Fe of V. R. G. Wilbur completed at 3,674 feet was completed flowing through open line doing 120 bbls. of 14.8-gravity oil cutting 4 per cent daily.

Kettleman Hills

Standard Oil Co. in the Kettleman North Dome field completed No. 4-3-P in section 3-22-17 and No. 78-3-P in the same section. The former was brought in flowing 998 bbls. of fairly clean 38.1-gravity oil and 4,000,000 feet of gas per day while the latter was completed flowing 330 bbls. of 37.8-gravity oil, 19 bbls. of water and 700,000 feet of gas daily. No. 4-3-P was bottomed at 8,020 feet and finished with 524 feet of 7-inch liner including 316 feet of perforated landed at 8,015 feet and cemented through perforations at 7,699 feet. No. 78-3-P was carried down to 8,389 feet and the hole finished with 459 feet of 5¾-inch liner and 3-inch tubing. The liner in the latter well froze at 8,287 feet and this may account for the smaller production, as the lower portion of the hole may have bridged over. Kettleman North Dome Association's deep test, No. 4-18-J in section 18-21-17 has passed the 11,000-foot level and a few days ago had exceeded this mark by 40 feet with the bit still making hole. The prevailing formation at the present time is a barren gray sand which shows no cut or odor. In the Kettleman Middle Dome Temblor Oil Co. of New York is going ahead in No. 1 Bunting in section 25-23-18 at 8,050 feet in a silty gray shale. The well is showing a small amount of oil and gas but paleontological information indicates that the top of the true Temblor formation has not yet been reached. Top of the present oil showings were logged at 7,962 feet.

San Joaquin Basin

In the Midway-Sunset field of Kern County Standard Oil Co. completed No. 78-33-D in section 33-32-24, pumping 330 bbls. of 21.8-gravity oil and 17 bbls. of water per day from 3,090 feet. The hole was finished with 234 feet of 6⅝-inch liner landed at 3,089 feet and an 8⅝-inch water string landed at 2,900 feet. Lilly Oil Co. No. 1 in section 36-32-23 was completed, pumping 246 bbls. of 20.4-gravity oil daily from 2,357 feet but the well has subsequently sanded up and is at present being cleaned out. Richfield Oil Corp. is starting a new well in the Midway Sunset field. The company has apparently decided to center its activities on the Fellows lease in section 6-32-23. The joint project of the Texas Co. and others southeast of Maricopa designated as No. 1 Pioneer Unit Plan, has been spudded in and is making normal progress. This outpost is being drilled in conjunction with several other operators and will be developed as a unitized operation if production is developed.

Mount Poso

In the new productive area discovered north of the Mount Poso field of Kern County, Ring Oil Co. completed No. 1 Loudon in section 32-26-28 pumping 280 bbls. of clean 17.5-gravity oil per day from 1,723 feet. This well picked up the top of the Vedder at 1,688 feet and the hole was finished with 1,687 feet of 8⅝-inch water string and 78 feet of 6⅝-inch liner including 56 feet of 140-mesh. This company has rig up for No. 1 Blackfoot but will probably delay drilling until a careful survey has been made of subsurface conditions. Several of the last wells drilled in this area have indicated the possibility of a restricted area of production in contrast with original expectations. Vedder Petroleum Co. completed No. 29-1 Lambert in section 29-26-28, pumping 299 bbls. of clean 16.9-gravity oil per day from 1,795 feet. The Vedder company has already spudded No. 29-2 Lambert and has rigs up for Nos. 3 and 4 on the same property in section 29-26-28. Dwight Vedder is rigging up rotary for No. 1 B. & B. which has an elevation of 1,035 feet above sea level. In the older section of the Mount Poso field Union Oil Co. is finishing No. 12 Tribe in section 28-27-28 and should have it tanking oil within another few days.

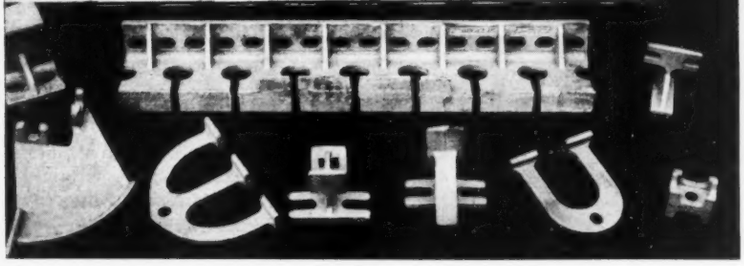
Los Angeles Basin

In the eastern end of the Montebello field the Texas Co. completed No. 17 Baldwin, doing 295 bbls. of clean 29.7-gravity oil per day from 6,680 feet after the hole had been carried down to 8,046 feet and plugged back because of the absence of a deep sand. Richfield Oil Corp. No. 2 Ciocca, also in the eastern end of the Montebello field, was completed pumping 160 bbls. of 28.8-gravity oil from 5,966 feet. In the Yorba Linda area south of the eastern tip of the Brea Olinda field and east of the eastern tip of the East Coyote field Bachmann Petroleum Co. has completed No. 1 Tuffree pumping 190 bbls. of relatively clean 17.8-gravity oil daily from 1,936 feet. This new well was shut in at the conclusion of the initial test due to the lack of storage. The hole was finished with 204 feet of 8⅝-inch liner including 162 feet of perforated landed at 1,934 feet. In the recently discovered productive area west of the Los Cerritos section of the Long Beach field Hilldon Oil Co. has concluded drilling operations on No. 2 Amebco at 4,085 feet and should be in a position to make a production test within another few days. In the meantime Union Oil Co. is busy driving piles for a rig base and constructing a road to the company's first location on the Oil Operators

(Continued on Page 274)

MEEHANITE CASTINGS

"Beat the Heat" —with MEEHANITE!



Troubled with "Growth"? For every type of Cast Iron there exists a minimum temperature of growth, and all irons heated above this temperature assume a permanent increase in volume. Some cast irons grow 50% or more of their original volume.

Better Use Meehanite! Castings of Meehanite may be made non-growing at temperatures up to 1200° F. And a special, heat-resisting Meehanite is non-growing at temperatures up to 1650° F.; it resists oxidation and scaling to a remarkable degree on sustained heating.

There's a Meehanite available for every oil-industry requirement!

METAL
Registered Trade Mark

SAVE WITH MEEHANITE-CAST EQUIPMENT!

Get Details from:

American Laundry Machinery Co., Rochester, N. Y.
Banner Iron Works, St. Louis, Mo.
H. W. Butterworth & Sons Co., Bethayers, Pa.
Cincinnati Grinders Incorporated, Cincinnati, O.
The Cincinnati Milling Machine Co., Cincinnati, O.
Cooper-Bessemer Corporation, Mt. Vernon, O.
Crawford & Doherty Foundry Co., Portland, Ore.
M. H. Detrick Co., Peoria, Ill., and Newark, N. J.
Farrell Birmingham Co., Ansonia, Conn.
Florence Pipe Foundry & Machine Co.,
(R. D. Wood Co., Philadelphia, selling agents)
Fulton Foundry & Machine Co., Cleveland, O.
G. H. R. Foundry Company, Dayton, O.
Greenlee Foundry Company, Chicago, Ill.
Hamilton Foundry & Machine Co., Hamilton, O.
Kanawha Mfg. Company, Charleston, West Va.
Kinney Iron Works, Los Angeles, Calif.
Koehring Company, Milwaukee, Wis.
Michigan Valve & Foundry Co., Detroit, Mich.
Rosedale Foundry & Machine Co., Pittsburgh, Pa.
Ross-Meehan Foundries, Chattanooga, Tenn.
Vulcan Foundry Company, Oakland, Calif.
Warren Foundry & Pipe Corp., Phillipsburg, N. J.
Washington Iron Works, Seattle, Wash.

Kentucky Fields

(Continued from Page 266)

No. 5 Smith & Cox, moving in. W. W. Damron and others No. 1 G. C. Rowan, 350,000 feet of gas, Jones sand, 1,168-75 feet, with water in bottom of sand, drilled through Barlow sand, total depth 1,433 feet, dry and plugged.

Daviess County

Red Hill district: Globe Oil Co. No. 3 W. R. Russell, dry hole through Jett sand.

Pellville district: Ross & Henry No. 3 Berry Heirs, 1,039,000 feet of gas, 200 pounds rock pressure, Jackson sand, 607-617 feet, total depth 618 feet.

McLean County

Maxwell district: Ellis & Huff No. 2 John Ditto, drilled through Bethel sand, total depth 1,607 feet; plugged back to Stray sand to shoot. Well made 15 bbls. naturally in Stray sand.

Livermore district: Cumberland Petroleum Co. No. 5 D. & S. Butterfield, dry hole; no sand; total depth 1,170 feet.

Island district: South-Penn Oil Co. No. 1 Mrs. Rena Brown, dry in Jett sand; drilling a deep test.

Breckenridge County

Vanzant district: Kentucky Natural Gas No. 1 Frank Duncan 400,000 feet of gas, Bethel sand 565-577 feet; No. 2 W. J. Robinson, moving in.

Hopkins County

Imperial Oil & Gas Co. No. 1, deep test, Archibald Estate, fishing at 2,520 for a string of tools.

Butler County

Rochester district: H. C. Darby and others No. 1 Lucian Norris, spudding in. A. M. Collins and others No. 4 Zella Woodall, rigging up; A. Corbett and others No. 1 Kyle Willis, rigging up.

EASTERN KENTUCKY

ASHLAND, Ky., Sept. 13.—One gas well, three oil well completions and one dry hole are included in the reports from the Eastern Kentucky counties. Operations in many districts at a standstill.

The Inland Gas Corp. completed No. 1 Ritter Short, on Wiley Fork of Troublesome Creek, Knott County, at a total depth of 3,009 feet, in slate. The daily gas flow is reported to be 190,000 feet.

Petroleum Exploration completed No. 15 on the G. W. Gausely farm on South Branch in the Ida May district, Lee County, with an initial production of 20 bbls. South Penn Oil Co. completed No. 95 Flahaven Land Co. land in Town Hollow, Lee County, at a total depth of 1,009 feet. It is a 10-bbl. well.

No. 1 on the T. M. Tackett farm on Calvin Branch of Magoffin County was completed by McKinney Wheeler at a total depth of 938 feet, but the production is so light that it may not pay to operate it.

Wireman Brothers hit a dry hole in No. 2 on the J. Belomy farm on South Fork in the South Fork district of Powell County.

Knott County

The Kentucky-West Virginia Gas Co. was drilling below 1,586 feet, in Big lime, in No. 553 on the Isom Gibson land in Knott County. The same firm is down 1,640 feet in No. 554 on the Lark Slone farm on Jones Fork, and is drilling in salt sand in No. 5,228 at the 1,460-foot level. This well is on the Nancy Johnson land on Caney Fork.

Inland Gas Co. is down 1,133 feet in Salt sand in No. 2 on the E. A. Hammonds farm with drilling continuing. The well is on Right Fork of Troublesome Creek. Inland was drilling at 922 feet in shale and shells in No. 3 on the R. C. Kilgore farm nearby.

Floyd County

Inland Gas Corp. is drilling below 570 feet, in lime, in No. 1 Ollie M. Glenn Heirs, on Levisa Fork in Floyd County. The Kentucky-West Virginia Gas Co. is drilling at the 1,325-foot level in well No. 555 on the Grover Jervis farm on Home Branch of Buffalo Creek.

Martin County

The Kentucky-West Virginia Gas Co. is down 1,077 feet in lime in No. 556 on the John Layne land in Martin County. The same firm had reached 1,550 feet, in lime slate, in well No. 5,225 on the C. W. Preece farm on Coldwater Fork and is drilling below 335 feet, in sand, in well No. 5,227, but was idle at No. 5,226. Both of these operations are on the Preece farm.

Magoffin County

The Bed Rock Petroleum Co. was drilling below 760 feet in No. 10 on the W. M. Prater land on Prater Fork of Masi Fork in the Burton-Oil Springs district in Magoffin County. A. V. Hoenig is moving rig to drill No. 9 on the L. M. Wheeler land in the Wheelersburg district and is also moving rig to the W. H. Conley farm in the same district to clean out wells.

The Cumberland Petroleum Co. has reached the 1,490-foot mark in well No. 13 on the D. Conley farm on Springs Fork.

Lawrence County

McKinster Brothers are down 1,350 feet in well No. 1 on the Mrs. E. G. McKinster land in the Busseyville-Fallsburg district in Lawrence County. This well is about 3 miles from the Thompson farm at Busseyville. Other districts in Lawrence County report operations at a standstill.

Powell County

Wireman Brothers have a dry hole in No. 2 on the James Belomy land on South Fork in the South Fork district of Powell County. Mrs. Agatha Wireman is drilling below 600 feet in No. 19 on the J. M. Townsend farm, nearby.

Lee County

C. E. Townsend, agent, is moving and rigging up No. 8 on the Andrew Combs land on Billie's Fork, Lee County. South Penn Oil Co. was drilling at 375 feet in No. 94 on the Flahaven Land Co.'s land on Big Sinking.

C. E. Townsend, agent, is rigging up No. 9 Andrew Combs land on Billie's Fork. The Central States Oil Co. has reached the 980-foot mark in well No. 4 on the M. Shoemaker land at Zoe.

5-plat, single-feed left-hand ratchet drive

4-feed Model "25" Showing ease with which pumping unit may be removed from reservoir.

Manzel
Force Feed Lubricators
MODEL "25"

For Positive and Economical Lubrication of Cylinders and Bearings

Deliver the oil to the cylinder or bearing regardless of steam pressure, temperature, or kind of oil used, in exact proportion to the speed of the engine.

Will supply plenty of oil for the heaviest duty engine or pump, yet may be regulated to supply fractional parts of a drop when used on compressors or other machinery requiring very little oil.

Built to withstand hard usage and to pump against high pressure.

All working parts are completely enclosed. Any unit may be removed without stopping lubricator or interfering with other units.

A large, clear-vision, heavy glass sight feed shows at all times exactly how much oil is being supplied.

Each feed is independently adjusted.

Made with 1 to 30 feeds

Write for Catalog 25-B

Manzel Chemical Feeders
For Injecting Treating Compounds into Crude Oil Lines

Feed the chemical into the oil line in exact proportion to the amount of oil pumped.

Entire driving mechanism enclosed and operates in bath of oil.

PISTON VALVE ACTION—Pumping unit fitted with the "Manzel" patented piston valve, the most satisfactory type of valve for handling treating chemicals. Only one valve used for both suction and discharge. This may be taken out for cleaning without disconnecting feed line.

ACCURATE REGULATION—Feed adjustable from a fractional part of a drop per stroke up to any amount desired.

CHEMICAL RESERVOIR—Furnished with or without 3-gallon container. Container has large hinged cover for quick filling.

SIGHT FEED—Can be furnished with sight feed to show the exact amount of chemical being pumped.

Made with ratchet, rotary or direct lever drive, also with electric motor or gas motor drive.

Ratchet Drive Feeder with 3-gallon Reservoir and sight feed

Write for Bulletin 60-A

Manzel Brothers Company

336-338 Babcock Street **Buffalo, N. Y., U.S.A.**

Oklahoma Operations

By
DAL DALRYMPLE

OPEN WILCOX SAND POOLS IN CREEK, SEMINOLE AREAS

Wilcox sand producing areas were opened in Creek and Seminole counties, the Cement field of Caddo County was extended westward, the Billings pool in Noble County was extended to the southwest and a 3,420-bbl. well was completed in the Logan County extension of the Lucien field, featuring field operations in Oklahoma the past week.

L. B. Jackson and associates opened a new producing area in Creek County at No. 1 Alberty, NE NE NW section 25-18-9e, at the southeast edge of the Mannford district. The wildcat was bottomed at 2,975 feet and flowed a total of 900 bbls. of oil in several tests, flowing 150 bbls. in nine and one-half hours on one test. It is estimated good for 350 bbls. of oil daily. It topped Wilcox sand at 2,972 feet. Three offsets to the new well have been staked, two by Sinclair Prairie Oil Co. and one by L. B. Jackson.

A new Wilcox sand producing area was opened in southern Seminole County at W. B. Pine No. 1 Amoson, SE SE SW section 15-6-6. It flowed 500 bbls. of oil in two hours from second Wilcox sand at 3,763-81 feet, total depth, and was shut in for tankage and pipe line connections. Top of first Wilcox sand was 3,595 feet, with nothing showing. The well uncovered the first Wilcox production in the East Konawa area, and is located one-fourth mile northwest of Calvin sand production in the area.

The Cement field of Caddo County was extended about one-fourth mile northwest at Magnolia Petroleum Co. No. 1 Henley, NE NE SE section 35-6n-10w. It flowed 535 bbls. of oil in 24 hours at total depth of 3,370 feet, producing from the Ramsey sand in the Lower Pennsylvanian formation.

Ray Stephens, Inc. No. 1-A Griffin, SW SE NE section 27-6-10w, also in the Cement area, has been completed as a 75,000,000-foot wet gasser, flowing through 4-inch choke on casing from sand at 6,801-88 feet, total depth. Work was started at this well in October, 1936, but completion was delayed by blowouts and faulty cement jobs on casing.

New Billings Well

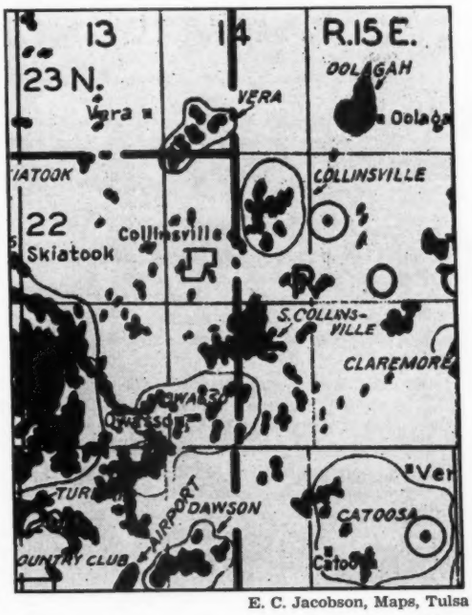
Tide Water Associated Oil Co. No. 1 Falke, NE NW NE section 28-23-2w, extended the Billings pool of Noble County slightly to the southeast. It flowed 240 bbls. of oil an hour for several hours at 4,339 feet, total depth. Offset wells have been started and other extensions for the pool appear imminent.

T. H. McGilless and associates No. 1 Big Lake Club, SE SE section 23-20-13, discovery near Verdigris in Rogers County, and about 16 miles east of Tulsa, may be deepened a few feet and shot before completing. The wildcat was estimated good for 250 bbls. daily on initial showings, but on later tests it produced at the rate of about 3 bbls. an hour and total daily production was estimated at 75 bbls. It originally blew in at 765 feet, and was deepened 3 feet.

Fate of the Carter Oil Co. and others No. 1 Crissman, C W half SW NW section 16-25-3w, Grant County wildcat, may be determined at any time. Tubing was being run at the week-end preparatory to a test. This well, a probable Wilcox sand pool opener, has been showing both oil and water, with oil increasing and water decreasing on previous tests. Packer was to be set in an effort to shut off water, thought to be coming from lime above bottom of casing.

Gulf Oil Corp. No. 1 Smith, C SW SW section 26-2s-3w, deep test in the Fox area, Carter County, was drilling at 5,225 feet in Sylvan shale, reported to have been topped at 5,127 feet. This top was 307 feet higher than in the Carter Oil Co. No. 1 Williams, deep pay discovery well in the pool, or actually about 250 feet higher, making allowance for difference in elevation of the two wells. The Smith is southeast of the Williams discovery. Gulf Oil Corp. No. 1 Johnson, C SW NW section 27-25-3w, northwest of the Williams, was drilling at 5,740 feet, in Hunton lime.

Harry Hollenbeck and Nels Burton Drilling Co. were moving in material for another deep test on the Deer Creek anticline, near Waukomis in Garfield County, at No. 1 Clark, NW cor. section 34-21-6w. Contract depth is reported as 7,600 feet or the Wilcox sand. Location is near a junked hole drilled several years ago by J. H. Lewis and associates on the same tract, which lost the



E. C. Jacobson, Maps, Tulsa

New producing areas have been opened in the old shallow district of northeastern Oklahoma in sections 23-20-15 and 18-22-15, Rogers County

hole at 6,520 feet after getting some showings of oil and gas. The area has been seismographed by three companies.

Pontotoc County

Five producers were completed in the Fitts field, Pontotoc County. Magnolia Petroleum Co. No. 36 Metropolitan Life, SE NE SW section 27-2n-7, topped Bromide at 3,900 feet, McLish 4,100 feet, was bottomed at 4,135 feet, treated with acid and made potential of 486 bbls. of oil, with 1,900,000 feet of gas.

Skelly Oil Co. No. 25 Park College, SW SW NE section 28-2n-7, found Cromwell sand at 2,372 feet, total depth 2,515 feet, flowed 226 bbls. of oil in 18 hours through casing, and later flowed 106 bbls. of oil in 14 hours through one-inch tubing choke.

Magnolia Petroleum Co. No. 14 Burris B, SW SE NE section 28-2n-7, flowed 288 bbls. of oil in 19 hours through tubing from Cromwell sand topped at 2,385 feet, total depth 2,525 feet.

Amerada Petroleum Corp. No. 11 G. Smith, SE SW NW section 28-2n-7, had Cromwell sand at 2,374 feet, was bottomed at 2,530 feet, and flowed 112 bbls. of oil through tubing in 10 hours.

Sinclair Prairie Oil Co. No. 21 Burris, NW cor. section 27-2n-7, flowed 230 bbls. of oil through casing in 7 hours and 157 bbls. in 4 hours through choke on tubing. Top of Cromwell sand was found at 2,550 feet, total depth 2,665 feet.

The following new work was reported in Pontotoc County: Magnolia Petroleum Co. No. 26 R. W. Simpson, NE cor. section 29-2n-7, building rig; Skelly Oil Co. No. 29 Park College, NE SW NE section 28-2n-7, rigging up rotary; Skelly Oil Co. No. 30 Park College, SW NW NE section 28-2n-7, building rig; Skelly Oil Co. No. 31 Park College, NW NW NE section 28-2n-7, cellar; Crusaders Petroleum Co. No. 2-B Morin, SW SE SE section 20-2-7, moving in rotary tools.

Noble County

Phillips Petroleum Co. No. 5 O'Neal, NW SW SE section 16-23-2w, in the Billings field of Noble County, was completed with potential of 1,768 bbls. of oil at 4,264 feet, total depth. It flowed 518 bbls. of oil in 6 hours from Wilcox sand topped at 4,243 feet. Gas measured 1,300,000 feet daily.

Logan County

Walter R. Curry and associates No. 2 Schlobb, SE cor. section 32-20-2w, in the Logan County extension of the Lucien field, found second Wilcox sand at 4,890 feet and was bottomed at 5,040 feet. It flowed 1,819 bbls. of oil in 12 hours through casing, making potential of 3,420 bbls. Gas averaged 8,250,000 feet.

New activity reported in Logan County included the Incorporated Petroleum Producers and others No. 4 Schlopp, SW NE SE section 32-20-2w, rigging up rotary; same operators No. 5 Schlopp, SW SE SE section 32-20-2w, location; same operators No. 6 Schlopp, NW SE SE section 32-20-2w, location; same operators No. 7 Schlopp, SE NW SE section 32-20-2w, location.

Oklahoma County

J. L. Wilson No. 1 School Land, SE SE NE section 35-12-3w, Oklahoma City area, Oklahoma County, topped Johnson sand at 6,335 feet, was bottomed at 6,405 feet and flowed 650 bbls. of oil daily through tubing.

Three new tests in Oklahoma County were reported. Ohio Oil Co. No. 4 Rankin, SW SE SW section 31-14-3w, and same company's No. 4 Messer, NE SW SW section 32-14-3w, were locations. Clark No. 1 Bollman, SW cor. section 14-12-3w, had dug cellar and pits.

Garfield County

H. R. Hollenbeck and associates No. 1 Clark NW cor. section 34-21-6w, wildcat southeast of Waukomis in Garfield County, had dug cellar and pits.

Lincoln County

Sun Oil Co. No. 3 Aranwine, NE SE SE section 35-15-2e, North Wellston pool Lincoln County, was completed for potential of 937 bbls. of oil. It topped Wilcox sand at 5,128 feet, was bottomed at 5,141 feet and flowed 284 bbls. of oil in 6 hours.

R. L. Kemp and associates No. 1 Lindley, NE SE NE section 20-17-5, had Wilcox sand at 4,053 feet, total depth 4,060 feet, plugged back to 4,048 feet, drilled out to 4,060 feet, and swabbed and flowed 70 bbls. of oil and 25 bbls. of water daily. Dolomite was topped at 4,038 feet.

Kay County

Higdon and associates No. 2 Nieman, NE NW NE section 9-26-3e, Kay County, was dry and abandoned at 350 feet, total depth.

Higdon and associates No. 3 Nieman, NW SW NE section 9-26-3e, had spudded.

Payne County

Sand Springs Home and others No. 1-A Wallace, SE NE NE section 5-19-5, Garr area, Payne County, topped Bartlesville sand at 3,196 feet, total depth 3,234 feet, swabbed 71 bbls. of oil in 12 hours and was completed as a 65-bbl. pumper.

Sun Oil Co. No. 1 Coron, NE NW SE section 6-19-5, found first Wilcox sand at 3,798 feet, second Wilcox sand

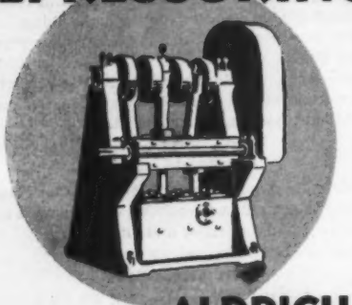
WATSON-W-S STILLMAN
FORGED STEEL FITTINGS

For complete satisfactory service —on pipe lines carrying oil or gas under high pressures and high temperatures—use W-S Forged Steel Fittings.

These easily applied, rugged fittings can be depended on for better, longer service under the most severe operating conditions.

THE WATSON-STILLMAN CO.
ROSELLE, NEW JERSEY

for efficient
REPRESSURING



ALDRICH PUMPS OFFER YOU

porcelain plungers in machines especially designed for the oil fields.
We invite inquiries for any special purpose types of pumps.
Write for catalog.

THE ALDRICH PUMP CO. – Allentown, Pa.

ALWAYS RENEW
YOUR SUBSCRIPTION
PROMPTLY

at 3,818 feet, plugged back to 3,725 feet, but was dry and abandoned.

Ohio Oil Co. No. 2 Harris, SW NW NW section 10-18-5, an old well being deepened, was drilling by tools at 2,170 feet.

Tulsa County

Johnson Oil Refining Co. No. 6 Bailey & Grimes, SW SE SW section 31-19-10, Keystone area, Tulsa County, had Red Fork sand at 2,235-87 feet, total depth, was shot and swabbed 315 bbls. of oil daily.

Johnson Oil Refining Co. No. 2 Hayden, SE cor. section 31-19-10, topped Red Fork sand at 2,241 feet, total depth 2,287 feet, was shot and pumped 25 bbls. of oil and 125 bbls. of water daily.

Superior Oil Corp. No. 8 Easley, SE NW NW section 7-19-10, pumped 30 bbls. of oil daily from Cleveland sand at 1,145 feet, total depth 1,169 feet.

Johnson Oil Refining Co. No. 4 Holmes & Bailey, SW SW NE section 31-19-10, topped Red Fork sand at 2,252 feet, was bottomed at 2,291 feet, and pumped 35 bbls. of oil daily.

Moore & Gilbert were drilling at 640 feet at their well in NW SW NW section 10-19-10.

Estimated Daily Production

Estimated daily production of Oklahoma for the week ending September 11, and for the preceding week, was as follows:

	Barrels	
	Sept. 11	Sept. 4
Allen	5,450	5,550
Billings	7,275	7,675
Burbank	7,950	7,975
South Burbank	13,225	14,250
Balance Osage	21,000	21,250
Blackwell district	5,525	5,500
Bristow-Slick	7,250	7,675
Chandler	2,800	2,825
Crescent	8,000	10,125
Cromwell	3,550	3,575
Cushing-Shamrock	10,950	10,850
Duncan district	3,975	4,000
Edmond	15,500	18,600
Fish	6,675	6,625
Fitts	82,900	89,250
Jesse	3,075	3,075
Graham	4,425	4,400
Gray	1,200	1,175
Healdton	10,150	10,175
Hewitt	4,350	4,375
Holdenville	900	900
Keokuk	8,050	8,025
Konawa	1,550	1,700
Lucien	14,025	15,600
Moore	9,725	12,250
Oklahoma City	148,775	165,500
Olympic	11,750	11,900
Polo	850	875
Sasakwa and townsite	2,625	2,625
Sholem-Alechem	3,150	3,175
Seminole:		
Bowlegs	11,900	11,875
Carr City	5,275	5,300
Earlsboro	5,950	6,050
South Earlsboro	700	675
East Earlsboro	7,550	7,675
Little River	11,825	11,850
East Little River	1,050	1,025
Maud	925	800
Mission	2,100	2,100
Seminole	9,400	9,375
East Seminole	2,750	2,725
Searight	4,475	4,500
Total Seminole	63,900	63,950
St. Louis-Pearson	19,975	19,950
Tatums	5,475	5,500
Tonkawa-Garber-Thomas	4,725	4,750
Wewoka	3,025	3,050
Yale-Jennings	4,250	4,275
Other pools	76,525	76,525
Total Oklahoma	604,500	639,525

Creek County

Shibley Oil Co. and associates No. 4 Campbell, NE NW NW section 13-17-7, Cushing field, Creek County, had Jones sand at 1,669 feet, total depth 2,009 feet, and swabbed 127 bbls. of oil daily.

Gulf Oil Corp. No. 1 Jemima, SW NE NE section 3-17-7, was completed as a 16-bbl. pumper at 2,553 feet, total depth.

Berry and associates No. 3-A Ingalls, NW SE SE section 34-17-7, had Prue sand at 2,465-2-518 feet, total depth 2,520 feet, and pumped 25 bbls. of oil daily.

Doak & Hughes No. 1-A Micco, C NE SW section 24-17-7, topped Prue sand at 2,527 feet, was bottomed at 2,530 feet, lost casing in the hole and was abandoned.

C. F. Mauck No. 1 Barnes, SE cor. section 18-17-8, was dry and abandoned at 1,116 feet, total depth.

Texas Pacific Coal & Oil Co. No. 1 McIntosh, NE cor. section 21-17-9, topped Layton sand at 1,344 feet, total depth 1,355 feet, and produced 2,000,000 feet of gas.

Curtis Oil Co. No. 1 Melton, SW SW NE section 10-19-9, Mannford area, had a hole full of water in sand at 2,240-80 feet, total depth, and was dry and abandoned.

Sinclair Prairie Oil Co. No. 4 Oates, SW SE NE section 14-19-9, topped Cleveland sand at 1,231 feet, was bottomed at 1,308 feet, plugged back to 1,303 feet and pumped 33 bbls. of oil daily.

Hayden & Hayden No. 1 Washington, SW SW NW section 13-19-9, was dry and abandoned at 1,370 feet, total depth.

J. P. Brady & Sons No. 4 Duncan, NW SE NE section 19-19-9, had Red Fork sand at 2,438 feet, total depth 2,471 feet, and pumped 25 bbls. of oil daily.

Tibbens Estate No. 2 Wilson, NW SW NE section 18-14-9, an old well in the Deep Fork area, was deepened from 1,2111 feet to Prue sand at 2,315 feet, total depth 2,358 feet, was shot and pumped 20 bbls. of oil daily.

R. R. Kirchner and others No. 1 Harjo, SE NE SE section 27-14-10, had pay at 2,674-78 feet, total depth, and flowed 80 bbls. of oil daily.

Emmett Adams No. 3 well, SE NW section 2-17-10, Kellyville area, had Red Fork sand at 1,998-2,057 feet, total depth, and pumped 10 bbls. daily.

Texas Co. No. 7 McIntosh, C N½ N½ SW section 3-17-7, an old well, was deepened from 2,579 feet to 2,670 feet, plugged back to 2,620 feet and pumped 10 bbls. of oil daily. Pure Oil Co. No. 10 Richards, NW NW SE section 4-17-7, an old well, was deepened from 2,659 feet to 2,685 feet and pumped 106 bbls. of oil daily. Tide Water Associated Oil Co. No. 5 Brown, NE NW NE section 9-17-7, an old well, was deepened from 2,678 feet to 2,701 feet and pumped 20 bbls. of oil and 10 bbls. of water daily.

New work in Creek County: Lease Investment Co. No. 1 Allen, NE SE SE section 35-15-10, was drilling at 2,515 feet; same company's No. 1 Tate, SE NE SE section 35-15-10, was a cellar, and same company's No. 1 Brooks, NW SW SW section 36-15-10, was a location.

Osage County

Barnsdall Oil Co. No. 24 Osage, NE NW SE section 18-23-12, Osage County, was bottomed at 1,650 feet, and pumped 4 bbls. of oil and 12 bbls. of water in 24 hours after a shot.

Magnolia Petroleum Co. No. 3 Osage, NE NW SW section 11-26-6, was a location. Wolverine Oil Corp. No. 53 North Avant Unit, NW SW NW section 32-24-12, and No. 64 North Avant nit, NE NW SW SW section 30-24-12, were locations.

Carter County

Kewanee Oil & Gas Co. No. 16 Willis, NW NE SE section 6-4s-3w, Healdton field, Carter County, was bottomed at 1,169 feet and pumped 79 bbls. of oil daily.

Neff & Godfrey No. 1-A Mobley, SE SW SE section 13-4s-3w, had spudded.

Jefferson County

Farlyn Oil Co. No. 50 Seay, SE SE SW section 3-7s-5w, Oscar-Seay area, Jefferson County, was bottomed at 1,270 feet and pumped 75 bbls. of oil daily.

Stephens County

Helmerich & Payne No. 1 Wade A, NE SE NW section 12-1n-5w, deep Milroy area, Stephens County, had County Line lime at 3,528 feet, total depth 3,746 feet, plugged back to 3,645 feet, was shot and produced 20,000,000 feet of gas.

George L. Pace and others No. 3-C Huston, C W½ NW SW section 2-2s-8w, was drilling at 500 feet. M Green No. 8 Green, NE NE SE section 27-1s-5w, was a location.

Caddo County

Ohio Oil Co. No. 8 Lackey, SE NE NW section 11-5n-9w, Cement area, Caddo County, had dug cellar and pits.

Beckham County

Consolidated Gas Co. No. 2 Kinsley, C NW SW section 10-9-25w, Beckham County, was a location. Principle Oil Co. No. 1 Carlton, SE SE NW section 26-7n-26w, was a cellar.

California Fields

(Continued from Page 271)

Waste Water Disposal System which was leased about a year ago when Shell Oil Co. began pioneer work on the Amebco and Bixby leases.

Fruitvale

In the Fruitvale field of Kern County, San Joaquin Basin, Siemon Brothers and associates completed No. 1 Krebs in section 15-29-27, pumping 130 bbls. of fairly clean 18.6-gravity oil daily from 3,985 feet. In the Coffee Canyon section of the Round Mountain, California Western Oil Co. completed No. 4 in section 12-28-28 pumping

RYERSON STEEL

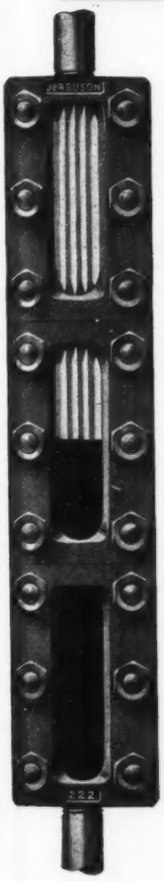
IMMEDIATE STOCK SHIPMENT

Bars, structurals, rails, sheets, plates, special alloy and tool steels, stainless steel (Allegheny metal) sheets, bars, etc., shafting, welding rod, babbitt, boiler tubes and fittings, wire, reinforcing bars, pipe, copper, brass, turnbuckles, metal working tools, etc.

Write for the Ryerson Stock List.

JOSEPH T. RYERSON & SON, INC. Plants at: Chicago, Milwaukee, St. Louis, Cincinnati, Cleveland, Detroit, Buffalo, Boston, Philadelphia, Jersey City. Offices at: Tulsa, Kansas City, Minneapolis.

JERGUSON



REFLEX GAGES

are ideal for gasoline, kerosene, steam, oil. No matter what the color of the liquid, they show the level in BLACK.

The *empty* space appears WHITE

The *Liquid* shows BLACK

Safe and durable at highest pressures and temperatures. Furnished with or without valves for every type of service. Write us.

JERGUSON GAGE & VALVE CO.
Mystic Ave. & Northern Artery
SOMERVILLE, MASS.

STEP AHEAD TO SUCCESS!

Reading important oil books is the surest route to success. For a FREE list of such books just address—

THE OIL AND GAS JOURNAL

448 bbls. of exceptionally clean 14.3-gravity oil daily and has made 1,310 feet of hole in No. 5 in the same section. On adjacent acreage H. A. McDonald is rigging up No. 1 Larkin.

In the North Belridge field Tide Water Associated Oil Co. found the top of the lower Wagonwheel zone at 8,370 feet in No. 6 Result in section 34-27-20 and is at present going ahead in a fine gray sand at 8,698 feet. In the Lost Hills field Standard Oil Co. has concluded drilling No. 4 United in section 2-26-20 at 1,296 feet and after landing 69 feet of 6⅝-inch liner has started bailing. This well was drilled from spud to completion in a little over a week. Argo Petroleum Corp. No. 1 Farnsworth in section 11-26-20 which was completed a week or so ago and proved wet has been recemented through perforations at 1,250 feet. This hole was finished with 578 feet of 8⅝-inch liner carrying 44 feet of perforations.

Eastern Fields

(Continued from Page 250)

at 1,685 feet. It is good for 1,000,000 feet a day. In this district, L. C. Young and others drilled a test on the Thomas Ryan farm through the Injun sand to 2,200 feet and it was a dry hole.

In Wetzel County, Brown Run Gas Co. test on the T. H. Meighen farm in Clay district was completed at 2,975 feet. The gauge from the Fourth and Gordon gas sands is 114,000 feet a day. In Grant district, R. A. Marshall & Co. deepened No. 2 M. Cunningham from 2,951 feet to 3,069 feet without an increase. The top of the Gordon was at 2,936 feet, with an oil showing at 2,942 feet, which will be shot.

Oriskany Gas Field

Three gas wells were completed in the Coopers Creek field in Kanawha County. In Poca district, Brawley Reid Gas Co. completed No. 1 L. E. Campbell in Oriskany sand at 4,900 feet. Top of the sand was at 4,884 feet with gas estimated at 3,090,000 feet a day before shot.

In this district, the Columbian Carbon Co. is completing the Mary C. Young heirs test with the Oriskany topped at 4,875 feet and 1,047,000 feet of gas at 4,884 feet. Both wells may be deepened before shot.

In the same district, Godfrey L. Cabot, Inc., completed the John T. Bonham test with the top of the Corniferous lime at 4,729 feet and the Oriskany sand at 4,831 feet. It gauges 1,500,000 feet a day before shot. In this district this operator is drilling at 4,573 feet in the J. C. Fisher and others test.

In the Coopers Creek field, United Carbon Co. made a location on the A. C. Facemyer and others farm in Poca district, one-half mile north of the gas well on the Elmer Thaxton farm.

In Elk district, the Yoak Oil & Gas Co. is drilling at 5,000 feet in No. 3 Goshorn heirs. Poca Fork Oil & Gas Co. is down 2,015 feet in No. 2 David M. Canterbury. Benedum-Trees, Inc., has reached 2,550 feet on the S. B. and L. D. Pauley farm and 4,500 feet in the Cora Baxter test. The Pond Fork Oil & Gas Co. has reached 3,500 feet on the Crowder & Thomas lease.

In Poca district, Everett Starcher topped the Corniferous at 4,733 feet in the Greenbury Samuels test. Mullins Gas Co. is down 4,500 feet on the Campbell & Odell lease. Lima Gas Co. is drilling at 1,710 feet on the Letha Moss test. Spartan Gas Co. has reached 1,603 feet on the Susan Legg and others No. 1 and 1,512 feet in No. 2. The Glen Oil & Gas Co. is down 2,468 feet in the James A. Haynes test. B. E. Andree is drilling at 1,090 feet on the E. M. Ray farm.

In Union district, Godfrey L. Cabot, Inc., has reached 4,137 feet on the C. W. Richardson test. The Grandview Gas Co. is down 2,995 feet on the Grand Memorial Park Co. Ajax Gas Co. is drilling at 1,000 feet on the L. B. and B. F. Bess farm and 2,000 feet on the Dunbar Development Co. land.

Outside Deep Tests

In Jackson County, the United Carbon Co. is drilling out the cement in No. 2 Elizabeth W. Perkins in Washington district at 5,014 feet and trying to cement off a casing leak in the 8-inch casing in No. 1.

In Wirt County, the Carnegie Natural Gas Co. is lowering the 10-inch casing and cleaning out after recovering the lost tools in the W. O. Caplinger test in Tucker district.

POWER EFFICIENCY **SPEED DEPENDABILITY**

You will have all these to the Nth degree when using

THE FAMOUS "A T L A S" MANUAL FREIGHT CAR MOVERS

Your DISTRIBUTOR can furnish them.

Trade Mark registered U. S. Patent Office

Manufactured only by

APPLETON-ATLAS CAR MOVER CORPORATION
2947 North 30th St. Milwaukee, Wis.
(Formerly Appleton Car Mover Co., Appleton, Wis.)

If you are not familiar with "X-L" couplings, write or consult your leading oil field distributor. Our special patented process for recessing means concentricity of recess in combination with threaded section of couplings, assuring accuracy in alignment of joints. Made to A.P.I. standards.

WHEELING MACHINE PRODUCTS COMPANY
WHEELING, W.VA.

Mississippi Development

(Continued from Page 57)

Central and even South Mississippi will be found at depths that can be reached. The Cockfield, Jackson and the Vicksburg in South Mississippi will be found at depths from 1,000 to 6,000 feet or deeper. In the extreme southern part of the state, the Miocene could "pay off." The Cretaceous-Selma chalk, Eutaw (Blossom sand of Louisiana equivalent) and Tuscaloosa (Woodbine of Louisiana and Texas equivalent) are possible producing formations that can be tested over possibly two-thirds or more of the state. Selma chalk, the gas horizon, also produces some oil at Jackson. Eutaw is, in the opinion of the writer, the formation in which Sun Oil Co. found 152 feet of asphalt saturated sand from 5,643 to 5,795 feet in its No. 3 Talley in Lamar County. Other wells have also had shows of oil and gas in the Eutaw. The production of Blossom and Woodbine of Texas and Louisiana is, of course, well known. Under proper structural conditions, there seems to be no reason why these formations should not produce in Mississippi. The finding of so much asphalt in the Sun well definitely proves the existence of commercial source beds.

No Lower Cretaceous is exposed at the surface, but has probably been encountered in a few wells drilled. The state of Mississippi fee No. 2 in the Jackson gas field penetrated some 2,500 feet of beds, mostly red and gray shale and gray, hard sandstone, which are thought to be Trinity in age. It is believed by some that part of the red sand and shale section found in wells in North and Northwest Mississippi were Trinity in age. At least, not all the red section in a few wells is thought to be Tuscaloosa. It is not beyond the realm of reason to think that not only this red section but Glen Rose and the so-called "Big Lime" of Smackover, probably Jurassic or Permian in age, will be found in West Mississippi. If these formations are present in South Mississippi, they may be too deep to be encountered with the drill bit, unless encountered on structures of considerable uplift such as the salt dome in Lamar County.

Reservoir sands and limes are known to be present, source beds are present—the big question in Mississippi now is: Do the necessary structural conditions for accumulation into commercial pools exist?

Structure

There are several known structures such as the Jackson anticline or dome, the Amory structure, the salt dome in Lamar County, and a "high" in South Perry County. The deep tests made in Stone County by the Gulf Refining Co. and the deep tests made in South Greene and North George counties by the United Gas Public Service Co. were regionally high and showed some structure between wells drilled. There are some faults in Clarke and Wayne counties, some of which have had wells drilled on them. There are some surface structures in Warren County and Western Hinds County. Subsurface structures appear to be present in the Delta section from the few wells that have been drilled in that area.

A number of geophysical "highs" have been reported from almost every section of the state. Also other surface and subsurface structures have been indicated in places, but additional detailed information is needed to make definite determination. The entire state has not been thoroughly worked by surface or geophysical methods and there is much to be learned from a thorough surface and subsurface study as to the structure and stratigraphy. Only time, lots of work and many wells drilled will finally tell the story as to the existence of structures where oil has accumulated.

The finding of a salt dome in Lamar County has opened new possibilities heretofore considered unlikely in Mississippi. It is reasonable to expect the presence of many more salt domes in the state. From the meager information available, it seems there may be a salt basin in South Central Mississippi and many salt domes will be found in this area. A study of some of the geophysical work that has been done and the leasing campaign that followed indicates some salt domes or other types of structures have already been found. Other types of structures were probably formed while the salt domes were developing. None of these recent prospects have been tested yet and as to what the final results will be no one knows, and it is perhaps hazardous to even guess.

Many of the wells already drilled have given valuable structural and stratigraphic information. Unfortunately, though, many of the wells drilled in the state, particularly those drilled several years ago, are merely holes in the ground and give no definite information.

If the exploration work continues at the present rate for the next year or two, the writer confidently predicts that one or more commercial oil fields will be discovered in Mississippi.

All of the activity that is being carried on evidences the faith and belief of the oil industry in the possibilities of Mississippi as an important potential source of oil.

Amory Gas Field

In October, 1926, No. 1 Carter of Amory Petroleum Co. was completed as the discovery well of the Amory gas field and the first commercial well to be completed in Mississippi. Since that time a number of wells have been drilled in that general area, but only four wells produced gas.

The total open-flow capacity of these wells was 15,000,000 feet per day. Gas was found at a depth of 2,412 feet in the Hartselle sandstone of Mississippian age. The initial rock pressure of the field was 600 pounds. This has declined to about 100 pounds. The total production to date since the discovery of the field is 1,450,000,000 feet of gas. This gas has been distributed locally to the surrounding towns. Only the discovery well remains a commercial producer. The production seems to be controlled partially by structure and partially by a sand condition.

The Jackson Gas Field

The Jackson gas field was discovered on February 28, 1930, when Jackson Oil & Gas Co. No. 1 Mayes was brought in making an estimated 25,000,000 to 30,000,000 feet of gas per day from a depth of 2,460-68 feet. The well had been drilled too deep into the formation and made considerable salt water and had to be plugged back to make a producer.

Altogether there have been 195 wells drilled on the Jackson structure with quite a number of these being on the outside of the gas producing area. These 195 wells resulted in 140 producers, 95 of which are still producing. The area covered by the field is about 7,500 acres. The initial rock pressure was 1,010 pounds. The present rock pressure is 922 pounds. The open-flow capacity of the field has ranged from some 3,500,000,000 to 4,000,000,000 feet of gas per day. Production comes from the top of the Selma chalk, which is the top of the Cretaceous in the field. The average depth of wells in the field is 2,430-35 feet. The average open-flow capacity per well is approximately 35,000,000 feet of gas per day. The total production for the field to date is 66,352,799,000 feet.

The Jackson structure is more or less dome shaped, the result of an intrusion of an igneous plug. The vertical uplift measured on top of the Cretaceous is about 2,500 feet. The deepest well drilled on the structure is the state of Mississippi No. 2 fee, section 26-6n-1e, Hinds County, which went to 5,530 feet, where it was abandoned and plugged back to 2,470-80 feet and completed as a commercial gas well. This well went out of the Selma chalk and into a sand at 2,842 feet. The formation penetrated from 2,842 to 5,530 feet consisted of hard sandstone, red gray and dark shales, and some sills of igneous rock. Although no positive determination as to the age of this material has been made, in the opinion of this writer and also of other geologists, the greater part of this material is Trinity in age.

The U. S. Geological Survey, prior to the drilling of the state well, had determined that some of the lower beds at Jackson were possibly Paleozoic in age. Since the drilling of No. 2 fee, the survey is of the opinion the material is Lower Cretaceous and is probably Trinity in age.

Although the development to date around the Jackson structure has not been particularly encouraging for the production of oil, such a large area certainly cannot be condemned by the number of tests that have been drilled thus far.

Laws and Regulations

The oil and gas laws and rules and regulations of Mississippi are somewhat similar to those of other states and seem to be reasonable and fair. There is a production tax of 2½ per cent on gas and 2 per cent on oil on the value of the product at the well.

The state oil and gas board, the regulatory body, is composed of Governor Hugh L. White, Attorney General Greek L. Rice, Land Commissioner R. D. Moore, and State Oil and Gas Supervisor Henry N. Toler.

Under Governor White's plan of balancing agriculture with industry, Mississippi is becoming more industrialized and hence more "oil minded" so that those companies searching for oil and additional gas fields in the state will meet with hearty cooperation from all the state officials.

The facilities and information of the state geological survey, University, Miss., with Dr. W. C. Morse as director, and of the state oil and gas board, Jackson, Miss., are available to anyone interested.

Maps

The geologic map accompanying this article was taken from the U. S. Geological Survey and the state survey map which goes with Water Supply Paper 576.

The Citronelle formation which covers the southern one-third of the state as a mantle deposit is not shown. It is composed mainly of red sand, gravel and clay.

The maps showing the possible producing area of different formations are the writer's own ideas. It means these formations are within reach of the drill, probably not deeper than 10,000 to 12,000 feet, and could produce.

The southern limit of the Paleozoic area is more or less uncertain as there is no information available as to what is below the Tuscaloosa formation. If a great thickness of Lower Cretaceous is present, the line is drawn too far south and if no Lower Cretaceous is present, it is likely that the area could be extended farther south.

Rocky Mountain Area

(Continued from Page 262)

Daggett County

Mountain Fuel Supply Co. No. 1 Smith, C SW NE sec. 30-3n-24e. Drlg. 1,893 ft.

Grand County

Utah Southern Oil Co. No. 1 Hyde, SE NW NW sec. 33-22s-22e. S.D. 6,715 ft.; M.I. heavier rot: equip.
Columbia Crude Corp. No. 1 Rath, NW SW SE sec. 12-25s-20e. Drlg. 2,334 ft.
Cane Creek Oil Co. No. 1 Govt., NW SW sec. 31-26n-21e. Drlg. 300 ft.

NEBRASKA

Sioux County

J. M. Huber Corp. and United Producers, Inc., No. 1 Morgan, C SW SW sec. 32-35n-56e. Drlg. 3,000 ft.

Dawes County

Stephens Oil Corp. No. 1 Palmer, C NW SW sec. 1-33n-50w. S.D. indef. at 2,531 ft.

Keith County

Twentieth Century Oil Co. No. 1 Stuken, C NW NW sec. 21-14n-37w. T.D. 110 ft.; R.U.R.; 132-ft. steel drk. up to replace wooden drk. blown down.

Lincoln County

Smith & Wright No. 1 Hansen, C SW NW sec. 24-15n-31w. Drlg. L. and shells 2,200 ft.; probably base of Lakota; good S.G. at 2,050 ft. and 2,100 ft.

Jefferson County

L. R. Page et al No. 1 Bonham, C SE SE sec. 1-1n-1e. Drlg. 1,045 ft. in hd. gr. L.

Richardson County

Arab Pet. Co. No. 1, SE SE sec. 9-1n-14e. Drlg. 1,700 ft.

DEEPER OIL SAND FOUND IN SCHULER, ARKANSAS, FIELD

By MITCHELL TUCKER

SHREVEPORT, La., Sept. 13.—The Schuler field in Union County, southern Arkansas, came back to the center of attention last week when a total of 50 feet of saturated sand was cored throughout a broken sand section above 7,615 feet, or about 2,000 feet below the original producing depth opened to production about 90 days ago.

Total number of oil wells in the Lisbon, Louisiana, field passed the 100 mark last week, and early estimates of ultimate recovery from this field appear to have been conservative.

RODESSA

Total Rodessa daily average production was 89,265 bbls. last week, of which 4,487 bbls. was from the Arkansas portion of the field, 48,888 bbls. from Louisiana and 35,890 bbls. from Texas. The ten Arkansas producers averaged 449 bbls. per well per day (there is no proration in that part of the field); the Louisiana wells averaged 121 bbls.; and the Texas wells averaged 105 bbls.

RODESSA—ARKANSAS

W. L. McClanahan and others No. 2 A. A. Capps, SW section 11-20-28, in the Rodessa extension area of Arkansas, flowed 100 bbls. daily after acidizing, to the total depth.

F. W. Burford No. 1-C A. A. Capps, W½ section 14-20-28, gauged 10,000,000 feet of gas and 290 bbls. of distillate on completion test, tubing pressure 1,600 pounds, total depth 6,085 feet. A short string was run to shut off the gas, without success.

RODESSA—LOUISIANA

Holcomb and Thomasson No. 1 Dillon, SE section 4-23-16, flowed 5 bbls. hourly through ⅛-inch tubing choke on completion test, total depth 6,030 feet.

RODESSA—TEXAS

Cass County

W. G. Ray Drilling Co. No. B-2 Geo. Parker, G. Crowder Survey, flowed 120 bbls. per day on initial test, total depth 6,058 feet.

R. W. Norton No. 5 W. & E. Starke, flowed at the rate of 210 bbls. per day through ¼-inch tubing choke, total depth 6,030 feet.

Ohio Oil Co. No. 20 E. P. Willis, SFIW survey, flowed 200 bbls. daily, ½-inch tubing choke, total depth 5,989 feet.

Marion County

Following the completion of the third good producer in the Jefferson extension area at Rodessa, 12 miles southwest from production in Rodessa proper, four new locations were staked last week, and others are expected soon.

Holcomb and Thomasson No. 1 L. Henderson, R. Bennington Survey, flowed 646 bbls. daily through ¼-inch tubing choke, total depth 6,050 feet. Saturated Henderson sand was drilled at 6,010-6,025 feet, and Gloyd at 6,030-6,048 feet. Location is one quarter of a mile north of the Jefferson discovery well.

Bossier Parish

Two and one-half miles west of production in the shallow Nacatoch sand production in Bellevue, L. W. Dennis has staked location for No. 1 L. Ross, SW NW NW section 13-19-12. Operators plan a 3,000-foot test here on the flank of the Bellevue dome.

Arkansas-Louisiana Gas Company No. 19-A Bodcaw, section 15-19-11, Bellevue, pumped 5 bbls. daily, total depth 450 feet.

Estimated Daily Production

Estimated daily gross production all companies week ending September 10:

NORTH LOUISIANA

	Bbls.
Bellevue	740
Caddo light	3,825
Caddo heavy	2,700
Converse	795
Cotton Valley heavy	130
Cotton Valley light	*3,380
De Soto and Red River	1,480
Elm Grove	395
Haynesville	3,005
Holly	120
Homer	2,475
Lisbon	13,425
Pleasant Hill	120
Rodessa	48,890
Sarepta-Carterville	310
Sligo	375
Sugar Creek	390
Urania	2,760
Zwolle	765
Total	86,080

SOUTH ARKANSAS

Champagnolle	1,370
El Dorado	1,960
Lisbon	285
Miller County	475
Nevada	740
Rodessa	4,485
Schuler	5,860
Smackover light	2,120
Smackover heavy	16,920
Stephens	590
Troy	565
Urbana	1,210
Total	36,580

Texas side of Rodessa field 35,890 bbls. daily.

*2,935 bbls. is distillate.

Caddo Parish

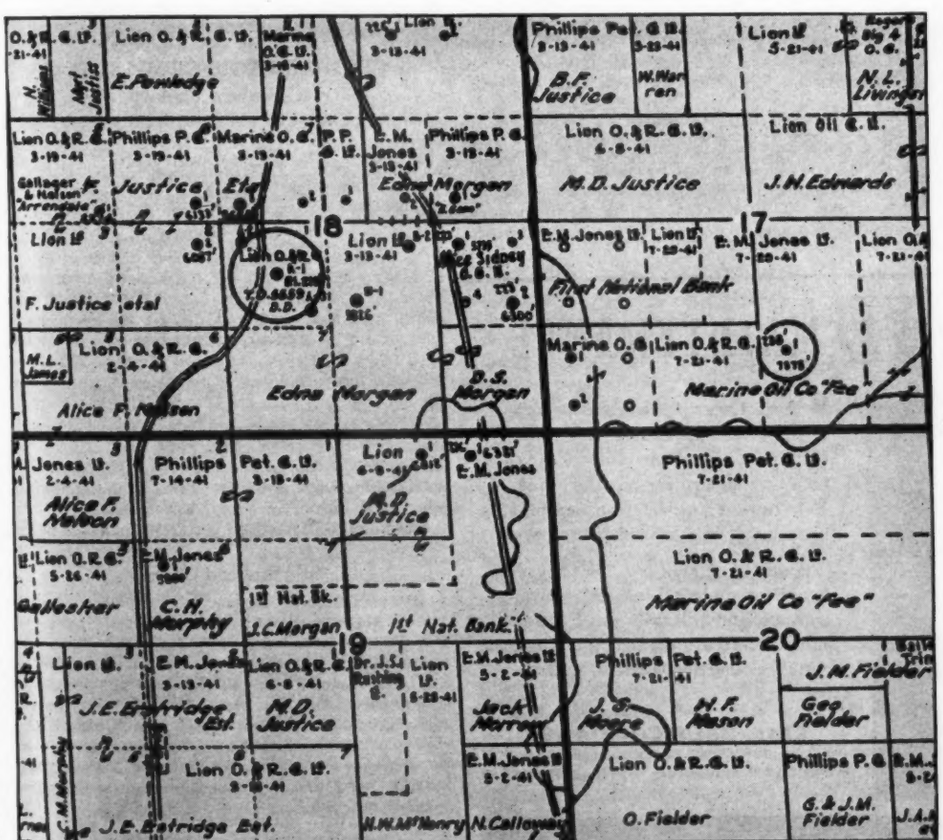
The Lower Marine test of the Caspiana area of southern Caddo Parish, about 15 miles south of Shreveport, was closely watched last week as drill stem tests were made. The Prairie River Syndicate No. 1 Hutchinson, section 15-15-12, cored 120 feet of sand in 150 feet throughout the Lower Marine section, and is still bottomed in the sand at a total depth of 8,838 feet. Cores carried an odor of gas or distillate, but apparently lacked good porosity. Drill stem test at this depth yielded no important showings, and drilling will be continued.

W. D. Ambrose No. 1 J. B. Files, SE NE SE section 10-25-15, flowed 150 bbls. daily, total depth 2,197 feet. Location is in the Caddo field.

In the same area, Surf Maji Oil Co. No. 1 Staellete, NE SE section 10-26-15, flowed 85 bbls. daily by heads, total depth 2,190 feet.

Claiborne Parish—Lisbon

Nine oil well completions in the Lisbon field of



Walter E. Wylie, Maps, Shreveport

The Schuler field of Union County, Arkansas, is being watched as deep sands are being tested. Large circle indicates location of discovery well in the 5,500-6,000-foot lenticular sand horizons, and small circle indicates E. M. Jones and others No. 1 Marine Oil Co., which has cored a total of 52 feet of porous and saturated sand above its present total depth of 7,615 feet, and are now preparing to test

Lincoln and Claiborne parishes last week brought total producers in that field to the 100 mark. Portions of ten sections in the field are now within the producing area, and the early estimate of 25,000,000 bbls. ultimate recovery, assuming a yield of 5,000 bbls. per acre, now appears to have been conservative. Outpost wells to the north and west are in the testing stage, and give promise of affording important extensions to the producing area.

Atlantic Refining Co No. 2 J. Bean, E½ SE NE section 31-21-4, flowing 54 bbls. hourly, total depth 5,202 feet.

Gulf Refining Co. No. 1 S. E. Tatum, SW corner section 32-21-4, pumped 92 bbls. daily, total depth 5,303 feet.

Love Bros. No. 2 J. J. Henry, N½ NE NE section 31-21-4, flowed 20 bbls. hourly on initial test total depth 5,175 feet.

Olson Drilling Co. No. 1-B T. F. Patton, S½ SE SW section 29-21-4w, flowed 175 bbls. daily through ¼-inch tubing choke, total depth 5,149 feet.

Scouts Oil Co. No. 1 E. C. English, S½ SW SE section 30-21-4, flowed 21 bbls. hourly, total depth 5,215 feet.

Sloan and Zook Co. No. 1 Patton Estate NE NW section 1-20-5 flowed 7 bbls. hourly, total depth 5,287 feet.

J. C. Tippett No. 2 Aycock, S½ NE SE section 1-20-5, flowed 45 bbls. hourly, total depth 5,378 feet.

G. H. Vaughn No. 1 E. B. King, S½ SE SE section 30-21-4, flowed 802 bbls. daily, total depth 5,130 feet.

Hollifield and McFarland No. 1 J. D. Carruthers, S½ NE NW section 6-20-6, flowed 50 bbls. hourly, total depth 5,347 feet.

Lisbon operators are closely watching the Lisbon Oil Company No. 1 J. W. Burgess, SE NE section 3-20-5, where testing will begin soon in a sand believed to have been passed up when the well was abandoned several months ago. Production at this point would throw open to exploration all the territory throughout a 2-mile area to the present southwestern limits at Lisbon.

De Soto Parish

Paul Miller No. 1 R. A. Barron, section 36-11-11, an offset to the discovery well in the Grogan field, tested salt water only and has been abandoned, total depth 2,934 feet.

Lincoln Parish

A new north Louisiana gas producing area was proven when Lide and Greer and others completed No. 1 Causey, section 32-19-2, flowing 60,000,000 feet of wet gas daily through perforations in casing from 5,216 to 5,236 feet, in the Lower Glen Rose. The Travis Peak was tested at this well but yielded salt water only, and hole was plugged back from its total depth of 5,822 feet to the present level. Location is about six miles north of Ruston. The well was abandoned several months ago by Arkansas-Louisiana Gas Company a few hundred feet above this depth, and Lide and Greer drilled it to the present level.

Webster Parish

Magnolia Petroleum Co. No. 2 A. J. McCook, SW section 22-21-10, in the deep sand of Cotton Valley, flowed 517 bbls. of distillate and 8,000,000 cubic feet of gas through three-eighths inch tubing choke, casing pressure 2,800 pounds, total depth 8,293 feet.

MISSISSIPPI

Franklin County

Derrick is being built for the drilling of Fred E. Courson and others No. 2 Homochitto Lumber Company, section 18-5n-3e, a proposed 5,000-foot test on their extensive block here. The Humble, Phillips, Texas-Gulf Coast, Texas Crusader and Kirby Petroleum Companies are taking spreads in the block.

Lamar County

It is reported that Sun Oil Company and associates will soon begin the drilling of their fifth well on the Lamar County salt dome, this time one location south of No. 3 Talley which was recently abandoned at 6,588 feet after coring asphaltic sand for several hundred feet.

ARKANSAS

Ashley County

Phillips Petroleum Co. No. 1 Godfrey, S½ SW NW section 18-17-9, wildcat test upon a geophysically mapped structure, has been abandoned in the Paleozoic lime at a total depth 5,611 feet.

Columbia County

Standard Oil Co. of La. No. 1 J. P. McKean, SW section 8-16s-22w, attracted attention last week when they elected to set 9⅝-inch casing at 4,692 feet, total depth 6,031 feet. Whether this was for the protection of hole, in preparation to drill deeper, or to test upper sands, could not be learned.

Seaboard Oil Corp. and the Tide Water Associated Oil Co. are preparing for their second deep test in Columbia County, No. 1 Crumpler, SW section 24-17-19. Contract depth is reported to be 7,000 feet here.

Union County

A potential new deep oil producing zone is soon to be tested at E. M. Jones and others No. 1 Marine Oil Co., NW SW SE section 17-18-17. Location is on the eastern side of production in the newly opened Schuler field, where 13 wells from the 5,550-6,200-foot lenticular sands are averaging about 5,500 bbls. daily. After logging a total of 52 feet of porous sand, carrying saturation, throughout a broken sand section from 7,553 to 7,615 feet, operators are now running casing for an accurate production test. Oil is standing about 2,000 feet in drill stem on test. The oil saturation here is thought to be in beds of the Lower Marine Trinity. The Big Lime (Paleozoic) was the objective of this exploratory test, which has not yet been penetrated.

Lion Oil Refining Co. No. 1-A Edna Morgan, section 18-18-17, discovery well at Schuler, which is also being carried deeper for a test of the Big Lime, is now fishing for drill stem at 6,183 feet.

Nevada County

In the Nacatoch sand area at Troy, Wallace Bruce No. 3 Haynie section 6-14-14, pumped 5 bbls. daily, total depth 1,166 feet.

West Texas Fields

(Continued from Page 256)

3,183-3,280 feet, shot, 794 bbls. on pump King Oil Co. No. 2-C Baer, 3,193-3,288 feet, shot, 452 bbls. on pump. Sinclair Prairie Oil Co. No. 1 Combs, 2,943-3,007 feet, shot, 388 bbls. on pump; No. 9 Leycomb, 2,830-2,940 feet, 220 bbls. on pump.

Carson County

Cities Service Oil Co. No. 5-E Magnolia, 2,996-3,083 feet, shot, 597 bbls. on pump. United Crude Oil Co. No. 3-A Cooper 3,105-95 feet, shot, 763 bbls. on pump.

Hutchinson County

Phillips Petroleum Co. No. 2 Thompson, 3,200-52 feet, shot, 398 bbls. on pump. S. & M. Oil Co. No. 7 Moore-Langdon, 3,039-3,115 feet, shot, 450 bbls. on pump. Stanolind Oil & Gas Co. No. 5-A Haile, 2,995-3,083 feet, shot, 243 bbls. on pump with 18 bbls. of water.

Moore County

Canadian River Gas Co. No. 21-A Bivins, 2,720-3,485 feet, 54,400,000 feet gas. Continental Oil Co. No. 1 Wells, 2,855-3,060 feet, 81,100,000 feet gas. Shamrock Oil & Gas Corp. No. 7 Sneed, 2,575-3,174 feet, 19,600,000 feet gas.

CENTRAL TEXAS COMPLETIONS

Callahan County

A. L. Anthony No. 1 George, 634-37 feet, 25 bbls.

Erath County

Jess Hickey and others No. 1 Martin, 2,855-67 feet, 90 bbls. per day.

Jack County

G. M. Gillespie No. 1 Oliver Loving, 3,169-91 feet, 38 bbls. W. H. Hammon No. 1 P. L. Rhodes, 2,924-31½ feet, 50 bbls. Hanlon-Buchanan Inc. No. 1 Lindsey, total depth, 3,620 feet, dry and abandoned. Hanlon-Buchanan Inc. No. 1 F. H. Rhodes, 2,377-91 feet, 23 bbls. Mullendore, Berry & Berry No. 3 Clayton "North", 2,982-92 feet, 395 bbls. Perry & Woody No. 8 Raley B, 2,917-44 feet, 580 bbls.

Jones County

Bridwell & Fikes No. 9 Jennings, 2,051-53 feet, 151 bbls. Brown Eagle & Roberts No. 2 Guitar, 1,977-2,001 feet, 3,000 gallons, acidized, 630 bbls. Guitar Trust Estate No. 8 fee, 1,974-2,004 feet, 2,000 gallons, acidized, 650 bbls.

Shackelford County

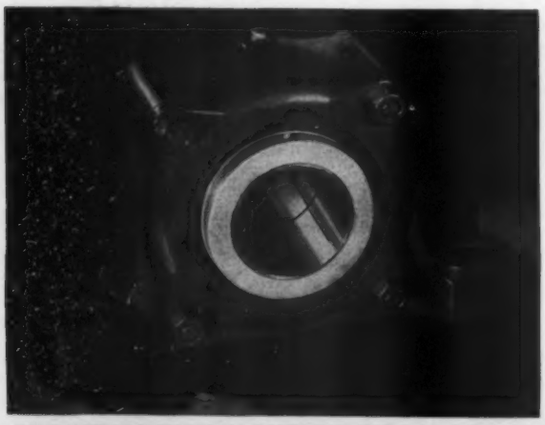
Albany Oil Co. & Pardue No. 13 Davis, 1,590-1,613 feet, 50 bbls. Chartier Oil Co. No. 11 Mims, 1,580-1,602 feet, 281 bbls. Hickok & Reynolds and others No. 6 Nail, 1,461-80 feet, 100 bbls. Jaggers & Parrott Production Co. No. 1 Huber, total depth 604 feet, dry and abandoned. Owen Snebold Oil Corp. No. 3 Ivy, 2,011 feet, dry and abandoned. Roeser & Pendleton No. 38 Dawson & Conway, 3,566 feet, dry and abandoned. Roeser & Pendleton No. 41 Dawson & Conway, 1,605-11 feet, 202 bbls. A. K. Schkade No. 2 Clausell, total depth 591 feet, dry and abandoned.

NORTH TEXAS COMPLETIONS

Archer County

L. T. Burns No. 6 J. S. Bridwell, 902 feet, dry; No. 2 J. M. Collins, 1,452-54 feet, 5 bbls.; No. 1 Mrs. M. S. Fichte, 1,457-61 feet, 40 bbls. Bridwell Oil Co. No. 3 L. F. Wilson F, 1,381-91 feet, 10 bbls. Deep Oil Development Co. No. 22 L. F. Wilson, 2,198-2,210 feet, 100 bbls.;

SAVE POWER - SAVE MAINTENANCE



● For lower power consumption, better appearance, less lubrication, minimum maintenance expense—standardize on the Link-Belt line of anti-friction bearings in modern, streamlined mountings.

Send for catalog No. 1500 covering the complete Link-Belt power transmission line — anti-friction and babbitted bearings, take-ups, clutches, shafting, collars, pulleys, etc.

6021

LINK-BELT COMPANY
2410 W. 18th Street, Chicago
DALLAS HOUSTON LOS ANGELES
TULSA

LINK-BELT *Anti-friction* BEARINGS

No. 23 L. F. Wilson, 2,230 feet, dry. O. P. Dorsey and others No. 1 J. T. Longley, 951-62 feet, 10 bbls. Duncan & Marchman No. 7 N. I. Andrews, 992 feet, dry. Fraser and others No. 1 L. C. Garvey, 1,540 feet, dry. W. T. Hutcheson, Jr., No. 1 H. K. Dycus, 1,426 feet, dry. Holbrook & Woods and others No. 1 J. S. Matlock, 632-44 feet, 15 bbls. Humble Oil & Refining Co. No. 7 D. L. Wolf, 1,324-42 feet, 15 bbls.

L. T. Burns No. 2 Mrs. M. S. Fichte, 1,481 feet, dry. Fraser & Watson No. 1 Mrs. M. E. Durham, 1,508 feet, dry. Groves & Kelleher No. 8 S. E. Oldham A, 1,342-82 feet, 15 bbls. Holbrook & Wood No. 2 J. S. Matlock, 700 feet, dry. Bo Minnich No. 3 W. H. Taylor, 418-30, 5 bbls. A. C. Parks No. 1 J. S. Matlock, 700 feet, dry. Shappell Oil Co. No. 3 John Conner, 1,104-08 feet, 100 bbls. Underwood & Campbell No. 20 R. Campbell B, 1,051 feet, dry.

Clay County

Sussex Oil Corp. No. 3 C. J. Shumake, 1,142-47 feet, 50 bbls.; No. 4 C. J. Shumake, 1,135-46 feet, 100 bbls. Texas Co. No. 4 Goetze, 1,089-1,110 feet, 37 bbls.

Bridwell Oil Co. No. 1 H. Boddy, 2,333 feet, dry. Sussex Oil Corp. No. 5 C. J. Shumake, 1,470 feet, dry.

Collin County

F. Jones and others No. 1 A. Sherley, 3,003 feet, dry.

Cooke County

Denver Producing & Refining Co. No. 1 J. M. Pearce, 3,240 feet, dry. Kell and others No. 1 Sears, 1,226 feet, dry. F. W. Merrick, Inc., No. 5 C. A. Stelzer C, 855-60 feet, 10 bbls. L. A. McWhirter, trustee, No. 1 W. J. Davidson, 715 feet, dry. Pace Petroleum Corp. No. 9 R. E. Aldridge, 1,089-1,137 feet, 150 bbls. A. D. Robinson No. 6 J. H. Otto B, 1,289-1,302 feet, 55 bbls.; No. 7 J. H. Otto B, 1,300-17 feet, 35 bbls. Trumter Oil Co. No. 8 G. T. Andress, 753-68 feet, 12 bbls. Wallace & Weatherley No. 1 J. R. Winstead, 1,149-68 feet, 48 bbls.

Bridwell Oil Co. No. 5 J. R. Parkey, 579-85 feet, 10 bbls. Gill and others No. 1 John Luke, 850 feet, dry. F. W. Merrick Inc. No. 6 C. A. Stelzer C, 804-48 feet, 10 bbls. Pace Pet. Co. No. 10 R. E. Aldridge, 1,403-95 feet, 115 bbls. Schermerhorn Oil Corp. No. 10 M. Kessler, 1,295-1,310 feet, 75 bbls. Trumpter Oil Co. No. 9 G. T. Andress, 748-68 feet, 60 bbls. Whitfield and others No. 7 F. C. Owen, 2,967 feet, dry.

Denton County

California Drilling Co. No. 1 W. & S. Life Insurance Co., 1,467 feet, dry. Manning & Moore No. 1 Dora Ratchford, 2,102 feet, dry.

Foard County

J. B. Baker, Jr., No. 1 J. F. Long, 3,505 feet, dry.

Grayson County

Denver Producing and Refining Co. No. 1 Cannon, 2,388-95 feet, 150 bbls.

Montague County

Sinclair Prairie and others No. 2 Rosa Hodges, abandoned location; No. 2 Viola Holt, 1,728-48 feet, 195 bbls.

Holcombe & Yingling No. 1 Mrs. A. B. Hinton, 745-62 feet, 3,500,000 feet gas. Montague Oil Co. and others No. 1 W. T. Ball, 4,485 feet, dry. Sinclair Prairie and others No. 3 Viola Holt, 1,783-1,802 feet, 30 bbls. Texas Northern Oil Co. No. 1 L. Keck, 808-33 feet, 20 bbls.

Wichita County

C. L. Apple No. 1 Jennings A, 1,475-80 feet, 5 bbls. Bonner Co. No. 1 First National Co., 3,680-3,866 feet, 1,250 bbls. Cable Oil Co. No. 28 J. E. Roller, 230-38 feet, 5 bbls. W. B. Omohundro No. 1 J. A. Kemp, 4,012 feet, dry. Perkins & Snyder No. 10 J. Serrien, 1,578-1,657 feet, 35 bbls. Peterson & McCarty No. 43 E. E. Hardin, 558-71 feet, 5 bbls. Perkins & Cullum No. 4 T. L. Burnett and others A, 1,670 feet, dry. Ruyle Farm Oil Co. No. 52 Ruyle, 1,622-35 feet, 25 bbls. J. W. Williams No. 1 M. Dodson, 562 feet, dry. L. T. Burns No. 15 First National Co., 3,649-3,863 feet, 1,500 bbls., wildcat extension. G. W. Cooper No. 27 W. T. Waggoner C, 683-87 feet, 10 bbls. King Oil Co. No. 3 S. B. Burnett and others B, 657-66 feet, 10 bbls. Panhandle Refining Co. No. 16 L. F. Ramming, 1,649-1,740 feet, 65 bbls. George Proctor No. 15 Foster A, 903 feet, dry. Staley Oil Corp. No. 1 Munger, 3,715-3,887 feet, 400 bbls.

Boardman Bros. No. 5 J. L. Jackson, 700 feet, dry. L. T. Burns No. 15 First National Co., 3,649-3,863 feet, 838 bbls., an extension. Deep Oil Development Co. No. 1 Munger E, 3,673-3,830 feet, 3,000 bbls. L. Dixon No. 1 A. J. Schulz, 1,973 feet, dry. G. A. Hunter No. 2 J. L. & T. J. Waggoner, 360-65 feet, 5 bbls. Perkins & Snyder No. 11 J. Serrien, 1,652-73 feet, 10 bbls. Peterson & McCarty No. 44 E. E. Hardin, 355-65 feet, 3 bbls.; No. 45 E. E. Hardin, 562-72 feet, 5 bbls.; No. 46 E. E. Hardin, 593 feet, dry. Mrs. J. L. Pyle No. 8 Munger, 1,094-97 feet, 10 bbls. Ruyle Farm Oil Co. No. 53 L. P. Ruyle, 1,711 feet, dry.

W. H. Hammon No. 2 Waggoner D, 310-25 feet, 10 bbls. Melat & Graham No. 2 Munger B, 3,702-3,870 feet, 1,025 bbls.

Wilbarger County

Cullum & Alexander No. 1 W. T. Waggoner, 3,070 feet, dry. Fain-McGaha Oil Corp. No. 23 W. T. Waggoner L, 3,942 feet, dry. Gibson & Jennings, Inc., No. 1 D. G. Feller, 1,282-91 feet, 50 bbls. H. B. F. Oil Co. No. 1 W. T. Waggoner, 3,115 feet, dry.

Hamilton Pet. Co. No. 2 R. L. Castleberry, 2,360 feet, dry. King Oil Co. No. 8 Waggoner F, 1,874-80 feet, 5 bbls. Waggoner Rfg. Co. No. 5 Waggoner B, 3,068-78 feet, 625 bbls.

Young County

S. S. Alexander No. 2 W. L. Boyd, 1,110 feet, dry. F. J. Allbritain No. 12 W. W. Gregg, 638 feet, dry.; No. 1 Mrs. Carolina E. Logan, 611 feet, dry. Buchanan & Dickerson No. 1 Gilmore, 582 feet, dry. Cable Oil Co. No. 37 S. E. Snider, 645 feet, dry. Clyde Texan Oil Fields Co. No. 1 Corbett, 4,374 feet, dry. R. R. Cocke No. 1 Routon, 748 feet, dry. I. A. Dunkin No. 5 C. F. Newman, 519-31 feet, 2 bbls. Hampton & Wimberley No. 1 R. L. Heard, 1,203 feet, dry. Frank W. Jones No. 1 J. L. Hawkins, 1,251 feet, dry. Homer Lee No. 7 J. L. Boone, 538-50 feet, 10 bbls.; No. 10 J. L. Boone, 508-18 feet, 5 bbls. E. C. Lehman No. 1 J. R. Dyer, 650 feet, dry. L. A. Long No. 1 W. J. Mathis, 2,355 feet, dry. Pitzer & West and Tidewater No. 3 T. J. Gardner, 3,928-36 feet, 946 bbls. in 12 hours. Rathke Oil Co. No. 1 C. E. Graham B, 884 feet, dry; No. 1 Rockmill, 3,602-4,074 feet, 100 bbls. Sinclair Prairie No. 11 Moren, 2,525-66 feet, 13 bbls. H. F. Tanner No. 1 C. Ferguson, abandoned location. Underwood Drilling Co. No. 30 Campbell C, 960 feet, dry. R. H. Vise No. 2 R. W. Easterling, 3,796-3,810 feet, 150 bbls. West & Honea No. 10 G. Stewart, 823-34 feet, 45 bbls. L. W. Wickes No. 1 Sam Taylor, 3,800 feet, dry. H. Zweifel No. 1 Buford, 2,616-20 feet, 165 bbls. in 10 hours; No. 1 R. D. Sewell, 4,480-94 feet, 37,000,000 feet gas.

H. J. Cox No. 1 W. T. Donnell, 1,540 feet, temporary abandoned. B. C. Gilmore No. 3 W. Williams, 627 feet, dry. Geo. Terrell No. 1 Routon, 775 feet, dry. R. H. Vise No. 3 Norton Props, 3,900-50 feet, 700 bbls. R. J. Watson No. 1 Kelknap, 702-10 feet, 5 bbls. D. L. Wolf No. 3 Wilson, 1,111 feet, dry.

New York-Pennsylvania Fields

By J. P. O'DONNELL

COUDERSPORT, Pa., Sept. 11.—Five wells were completed in the New York-Pennsylvania deep sand gas fields, two new locations reported and promising indications of a new field were found during the week ended September 10.

Two of the completions, both producers, were brought in in the new Woodhull field of Woodhull Township, Steuben County, New York, raising the total of completions in this district to five, all of which were successful.

G. L. Cabot, Inc., completed its well on the Carrie Calkins farm with an initial open flow of 20,000,000 feet per day. This well topped the Oriskany sand at 4,019 feet after topping the Onondaga at 3,979 feet. It is bottomed at 4,020 feet.

John W. Becker completed his test on the C. Calkins farm with an initial open flow of 17,000,000 feet. This well found the Onondaga at 3,967 feet, the top of the Oriskany at 4,005 feet and was bottomed at 4,007 feet.

A new location was reported in the Woodhull field bringing the total of current operations there to 12. Hanley & Bird have staked a location 270 feet from the south line and equidistant between the east and west lines of the John Lobeck farm.

The second new location is in Harrison Township, Potter County, Pennsylvania, where the New York State Natural Gas Co. is moving in material for a test on the No. 2 A. Schofield farm.

Three Pennsylvania wells were also completed during the week, two as producers while the third was abandoned as dry. G. L. Cabot, Inc., well on the A. Bean farm, Harrison Township, Potter County, was flooded out with salt water 8 feet in the Oriskany sand. It reached the Oriskany at 4,880 feet and struck salt water at 4,888 feet. It was plugged and abandoned after drilling 2 feet deeper. The Onondaga was at 4,848 feet.

French and others completed their well on the George Burd farm, Allegany Township, Potter County, south of the Ellisburg field, at 5,288 feet with a total initial open flow of 8,000,000 feet. This well found the Tully limestone at 4,616-68 feet, the Onondaga at 5,243 feet and topped the Oriskany sand at 5,267 feet.

The G. L. Cabot, Inc., test on the A. J. Pride farm, Westfield Township, an extension of the Sabinsville field, was completed at a total depth of 4,981 feet with a flow of 1,500,000 feet per day. This well, 2 miles north of the proven limits of the field, topped the Oriskany sand at 4,965 feet.

Encouraging indications were encountered in the Kane Industrial Gas Co. well on Lot 515, Watson Township, Warren County, with a show of 80,000 feet of gas in the Onondaga. This well will be drilled into the Oriskany this week. It is now down 4,331 feet. It is 10 miles west and somewhat south of the Kinzua Township wells which struck salt water in the Oriskany, and 15 miles southeast of the Pittsfield Township well which failed to find the Oriskany and was dry in the Medina.

Pennsylvania Operations

The Potter Development Co. has shut down to run casing in its test on the Ida Scoville farm, Harrison Township, after encountering a flow of 100,000 feet at 5,235 feet. Top of the Onondaga was at 5,201 feet. In other Potter County operations the company is drilling at 5,190 feet on the Crawford farm, Keating Township, and is fishing at 5,675 feet on the Haupt farm, West Branch Township.

Penn York's test on the M. Reynolds farm, Harrison Township, Potter County, topped the Oriskany sand at 4,928 feet and struck a gas flow gauging 1,350,000 feet at 4,933 feet. It is now drilling at 4,940 feet.

In the remaining Potter County operations, P. P. & L. Co. is drilling at 1,585 feet on the G. M. Whitman farm (elevation 2,131 feet), and the New York State Natural Gas Co. has a location on the A. D. Marble farm (elevation 2,142 feet), both in Harrison Township.

Another Warren County well, Updegraff's test on the C. E. Erickson farm, Elk Township, is nearing the Oriskany horizon and is now drilling at 4,030 feet. Evjen and others are drilling at 1,800 feet on Dusenberry farm, Watson Township, and Belmont Quadrangle Drilling Co. has a location staked on Lot 487, Pleasant Township.

The New York State Natural Gas Co. test on the A. W. Leonard farm, Westfield Township, Tioga County, has reached an interesting stage and is drilling at 4,130 feet. It passed the Tully limestone at 3,784-3,838 feet. In McKean County the H. C. Drilling Co. test on the Van Scoy farm, Hamilton Township, is drilling at 3,770 feet. Potter Development Co.'s wildcat test on the N. D. Dahl farm, Hayfield Township, Crawford County, is shut down at 4,230 feet.

New York Operations

The sixth Woodhull Township, Steuben County, test reached the Onondaga when Clancey and others' test on the No. 1-A Bates farm topped that formation at 3,828 feet. This well (elevation 1,398 feet) is now shut down at 3,848 feet.

In other Woodhull operations, Hanley & Bird are drilling at 3,850 feet on the Moyer farm; Sylvania Corp. is shut down at 3,227 feet on the H. Hand farm (elevation 3,190 feet); Sylvania Corp. is drilling at 1,635 feet on the A. H. Tuttle farm (elevation 1,457 feet); Belmont Quadrangle Drilling Co. has a rig up on the L. S. Johnson farm (elevation 1,656 feet); G. L. Cabot, Inc., is drilling at 1,400 feet on the R. C. Towsley farm; Williamsport Oil & Gas Co. is building the rig on the Della Lampson farm (elevation 1,307 feet); Southwestern Development Co. has a location on the J. Seeley farm, and New York State Natural Gas Co. is building the rig on the H. J. Tubbs farm (elevation 1,488 feet).

Outside of Woodhull Township in Steuben County, the New York State Natural Gas Co. is building the rig for a test on the M. A. Knoll farm (elevation 2,508 feet) in Troupsburg Township.

Southwestern Development Co. is cleaning out at 4,592 feet on Federal Land Bank farm, Montour Township, Schuyler County. In Allegany County, Fairman and others are drilling at 4,200 feet on the C. Wilson farm (elevation 2,288 feet), Willing Township, and G. L. Cabot, Inc., at 1,075 feet on the Thomas Murphy farm (elevation 1,971 feet), Alma Township.

All's well! - with this Well. The verdict of an expert:

We have pleasure in confirming our entire satisfaction with the rotary drilling plant supplied by you . . . . . .

The attendance of the plant has been enormously simplified by the arrangement provided by you . .

The stepless regulation of the speed permits of a better adaptation to the rock formation.

DEMAG

Rotary Plants for deep well drilling

Agents for U.S.A.:

Seamless Steel Corporation

New York, Broadway 39

Canadian Fields

Completions and Operations in Northwest and in Ontario

By VICTOR LAURISTON

CHATHAM, Ontario, Sept. 11.—Crude oil and naphtha production from all Alberta fields in July totaled 226,000 bbls., compared with 191,634 bbls. in June. Turner Valley limestone production increased from 188,496 to 222,455 bbls., and Turner Valley shallow production from 915 to 1,097 bbls. Red Coulee light crude was up from 1,115 to 1,242 bbls. and Wainwright heavy crude increased from 1,058 to 1,180 bbls. There was a heavy crude production of 206 bbls. from the Dina well in the Ribstone field, compared with 50 bbls. in June.

The total of 223,372 bbls. for Turner Valley brought the production of that field for the seven months to a new high of 1,180,339 bbls. The daily output for Turner Valley established a new record of 7,205.5 bbls. compared with 6,110 in June. Monthly totals this year have increased steadily from a low of 125,714 bbls. in January. The total production for all Alberta for the seven months was 1,196,563 bbls.

West Side Completions

On the west flank of Turner Valley, Davies-Royalite No. 2, LSD 13, section 21-18-2w5, has been finished more than 400 feet in the Madison limestone, and is testing production. It looks like a large crude producer. It got the Madison limestone at 6,496 feet and was carried to around 6,900 feet. Location is about a mile south of Turner Valley Royalties No. 1, the crude discovery well, and about midway between the B. & B. Co. No. 1 and Foundation Royalties No. 1 crude producers. The well was financed jointly by Davies Petroleums, Ltd., and Royalite Oil Co., the latter supplying rotary equipment and handling the drilling.

Richland Royalties No. 3, LSD 14, section 28-18-2w5, finished 441 feet in the Madison limestone at 6,047 feet depth, averaged 530 bbls. a day on a 10-day test. Storage tanks have been installed to handle production. Among recent completions, Royalite Oil Co. No. 5 Sterling Pacific, LSD 12, section 28-18-2w5, is making around 1,770 bbls. a day, though production has run as high as 2,200 bbls. Monarch Royalties No. 1, LSD 9, section 20-18-2w5, is making slightly better than 700 bbls. a day.

In North Turner Valley, Model Oils No. 1, LSD 8, section 22-20-3w5, was acidized and brought back to its original peak production of 165 to 170 bbls. a day.

Tests in the Lime

Five other tests are now in the Madison limestone. In West Central Turner Valley, Mercury Oils No. 8, LSD 3, section 4-19-2w5, which got the lime at 5,500 feet and cemented at 5,560 feet is below 5,651 feet. It is expected to go to 6,000 feet before getting big production, and will probably be the next completion.

On the west flank, Brown Oil Corp. No. 2, LSD 8, section 20-18-2w5, got the Madison around 6,533 feet, and has resumed drilling after cementing casing in the top of the lime.

In the southwest extension of the field, Brown Oil Corp. No. 1, LSD 14, section 16-18-2w5, has resumed drilling after getting the lime at 6,344 feet and cementing casing at 6,370 feet.

In section 29-18-2w5, Granville Oils No. 1, N half LSD 16, got the Madison limestone below 6,857 feet and has cemented casing. Location offsets Turner Valley Royalties No. 1 producer about a quarter mile to the west. Share Royalties No. 1, N half LSD 8, same section, has got the lime around 6,700 feet and is cementing casing. These will be the first completions in section 29, and will indicate the potentialities of an area west of the proven producers and somewhat lower on structure.

West Side Drilling

In West Central Turner Valley, Brown Oil Corp. No. 3, LSD 15, section 19-19-2w5, is below 4,027 feet. Vulcan-Brown Petroleums No. 1, LSD 10, section 5-19-2w5, is below 2,297 feet. Mercury Royalties No. 1, LSD 8, same section, is fishing at 5,121 feet.

In section 33-18-2w5, Royalite Oil Co. No. 6 Sterling-Pacific, LSD 5, is below 5,005 feet.

In section 28-18-2w5, Four Star Petroleum No. 1, LSD 13, is below 6,186 feet. Three Point Petroleums No. 1, LSD 12, is below 5,962 feet. Richland Royalties No. 1, NE quarter LSD 12, is cleaning out to bottom at 3,160 feet and will be completed with cable tool outfit and crew from No. 3 producer. Richland No. 2, LSD 5, is below 5,309 feet, drilling and carrying casing. Model-Spooner-Reward No. 1, LSD 4, offsetting B. & B. No. 1 producer to the south, is below 6,393 feet and expected to get the Madison limestone within a few days.

In section 32-18-2w5, Royal Crest Petroleums No. 1, LSD 9, is below 6,115 feet. West Turner Petroleums No. 1, LSD 2, is below 925 feet. West Turner No. 2, LSD 7, is rigged. West Flank Oil Co. No. 1, LSD 1, is below 4,506 feet. West Flank No. 2, N half same LSD, is below 2,997 feet. West Flank No. 3, LSD 8, is below 1,691 feet.

In section 29-18-2w5, Commoil No. 1, LSD 15, is in very hard formation below 6,656 feet and expected to get the Madison around 6,900 feet. National Petroleum Corp. No. 1, S half LSD 8, is below 6,390 feet. Globe Royalties No. 1, LSD 7, is below 2,306 feet and getting close to the Belly River-Benton contact. Davies Petroleums No. 1, LSD 2, is below 3,508 feet and preparing to change from cable to rotary tools.

In section 20-18-2w5, Royal Canadian Oils No. 1, LSD 15, is below 3,717 feet.

Spy Hill Royalties No. 1, LSD 16, same section, is below 3,000 feet.

Pacalta Oils No. 1, section 28-18-2w5, which has been a small naphtha producer from the lime, making 241 bbls. in July, will be cleaned out and acidized, and possibly drilled deeper.

Southwest Extension

In section 17-18-2w5, Prairie Royalties

(Continued on Page 291)

Summary of Operations, All Fields for August

SUMMARY OF ALL FIELDS

Wells Completed

	Comp.	Prod.	Dry	Gas
Pa. Grade fields	564	3,073	30	70
Central Ohio	103	1,042	32	49
Lima	2	85	0	0
Illinois	34	14,921	9	0
Indiana	7	101	1	1
Kentucky	117	1,545	49	36
Michigan	79	21,180	17	7
Kansas	227	118,035	47	14
Oklahoma	206	42,294	58	7
No. Central Texas	140	14,166	67	4
West Texas	244	150,365	37	2
Texas Panhandle	72	28,609	2	13
East Central Texas	58	16,906	4	1
East Texas	206	13,637	4	0
East Texas Border	21	5,326	2	1
Gulf Coast—Texas	200	85,419	37	6
Southwest Texas	313	23,235	98	4
North Louisiana	76	25,136	15	25
Gulf Coast—La.	55	17,719	20	1
Arkansas	22	6,492	6	0
Montana	26	1,756	8	2
Wyoming	13	739	5	2
Colorado	2	60	0	1
New Mexico	49	28,277	6	3
Total August	2,836	620,118	551	249
Total July	3,168	782,712	602	265
Difference	332	162,594	51	16

Rigs and Wells Drilling

	Rigs	Drlg.	Ttl.
Penna Grade fields	89	649	738
Central Ohio	38	118	156
Lima	0	25	25
Illinois	13	88	101
Indiana	0	32	32
Kentucky	5	86	91
Michigan	24	179	203
Kansas	62	410	472
Oklahoma	48	418	466
North Central Texas	37	235	272
West Texas	92	430	522
Texas Panhandle	62	184	246
East Central Texas	10	76	86
East Texas	98	119	217
East Texas Border	7	36	43
Gulf Coast Texas	21	93	114
Southwest Texas	101	210	311
North Louisiana	31	129	160
Gulf Coast Louisiana	31	152	183
Arkansas	11	47	58
Mississippi	6	14	20
Alabama	0	3	3
Florida	0	4	4
Montana	4	76	80
Wyoming	14	71	85
Colorado	0	44	44
New Mexico	13	166	179
Utah	0	9	9
Nebraska	0	7	7
Total August	817	4,110	4,927
Total July	902	4,056	4,958
Difference	85	54	31

OKLAHOMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Adair	0	0	0	0	1	1
Atoka	0	0	0	0	2	2
Beckham	0	0	0	0	2	2
Caddo	1	58	0	2	7	9
Carter	6	111	3	3	21	24
Cleveland	4	2,188	0	0	6	6
Coal	1	35	0	0	2	2
Comanche	2	0	2	0	4	4
Cotton	4	0	4	0	2	2
Creek	6	260	0	9	60	69
Garvin	8	548	3	0	10	10
Grady	1	0	1	0	4	4
Grant	2	760	1	0	1	1
Haskell	0	0	0	0	1	1
Hughes	7	329	2	1	17	18
Jackson	0	0	0	1	4	5
Jefferson	4	152	0	1	5	6
Johnston	0	0	0	0	2	2
Kay	3	283	1	1	2	3
Kiowa	0	0	0	1	3	4
Latimer	0	0	0	0	1	1
Lincoln	5	1,964	0	0	11	11
Logan	1	62	0	2	10	12
Love	1	50	0	0	1	1
Marshall	2	12	1	0	3	3
McCurtain	1	0	1	0	0	0
Murray	0	0	0	0	2	2
Muskogee	1	0	0	2	8	10
Noble	11	5,709	3	2	14	16
Okfuskee	7	137	4	2	9	11
Oklahoma	2	388	0	0	10	10
Okmulgee	15	855	7	6	30	36
Osage	28	856	11	0	33	33
Pittsburg	1	0	1	0	2	2
Pawnee	1	0	1	1	0	1
Pontotoc	51	23,734	7	7	56	63
Pottawatomie	8	1,331	1	2	15	17
Pushmataha	0	0	0	0	1	1
Seminole	11	2,434	1	1	29	30
Stephens	5	27	1	1	10	11
Tillman	1	0	1	0	4	4
Tulsa	4	11	0	2	7	9
Wagoner	1	0	1	1	4	5
Washita	0	0	0	0	2	2
Ttl. Aug.	206	42,294	58	48	418	466
Ttl. July	273	86,539	66	57	411	468
Difference	67	44,245	8	9	7	2

Gas wells completed: Lincoln, 1; Muskogee, 1; Osage, 1; Pontotoc, 1; Stephens, 1; Tulsa, 2; total, 7.

KANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Barber	1	726	0	2	3	5
Barton	21	14,349	2	7	41	48
Butler	9	1,169	1	0	10	10
Chase	0	0	0	0	1	1
Chautauqua	8	115	4	2	15	17
Coffey	1	0	1	0	1	1
Cowley	8	3,060	4	3	13	16
Edwards	0	0	0	0	1	1
Elk	4	125	3	0	8	8
Ellis	27	27,896	6	11	54	65
Ellsworth	3	1,069	0	1	4	5
Grant	5	0	0	3	5	8
Greenwood	6	422	1	1	19	20
Hamilton	0	0	0	0	1	1
Harper	0	0	0	0	1	1
Harvey	8	3,752	3	0	1	1
Kearny	0	0	0	0	1	1
Kingman	0	0	0	0	1	1
Kiowa	1	0	1	0	0	0
Lyon	0	0	0	0	1	1
Marion	0	0	0	3	2	5
McPherson	4	1,560	1	0	15	15
Meade	0	0	0	0	1	1
Mitchell	0	0	0	0	1	1
Ness	0	0	0	1	5	6
Osborne	0	0	0	0	2	2
Pawnee	0	0	0	0	1	1
Pratt	0	0	0	0	2	2
Reno	15	7,882	3	5	16	21
Rice	35	15,882	5	6	50	56
Rooks	1	528	0	0	9	9
Rush	3	1,589	1	1	9	10
Russell	42	34,366	3	13	71	84
Scott	0	0	0	0	2	2
Sedgwick	3	100	2	0	10	10
Seward	1	0	0	0	0	0
Stafford	5	2,489	1	2	14	16
Stevens	5	0	0	0	3	3
Sumner	4	706	0	1	6	7
Trego	2	0	2	0	3	3
Woodson	5	250	3	0	7	7
Ttl. Aug.	227	118,035	47	62	410	472
Ttl. July	297	177,987	68	88	376	464
Difference	70	59,952	21	26	34	8

Gas well completions: Chautauqua, 2; Grant, 5; Rush, 1; Seward, 1; Stevens, 5; total, 14.

SOUTHWEST TEXAS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Agua Dulce	1	35	0	0	5	5
Alta Mesa	1	0	1	0	2	2
Alta Verde	0	0	0	2	1	3
Barbacoas	0	0	0	0	2	2
Bateman	1	0	1	0	0	0
Branyon	31	2,770	5	4	11	15
Bruni-Cole	1	120	0	1	0	1
Buchanan	7	255	1	2	7	9
Cedar Creek	0	0	0	1	0	1
Charamousca	2	50	1	0	1	1
Clara Driscoll	1	0	1	0	2	2
Colmena	3	280	0	0	0	0
Cuevitas	2	305	0	0	0	0
Dale	1	20	0	2	1	3
Darst Creek	3	385	1	0	6	6
Driscoll	1	215	0	0	6	6
Dunlap	2	15	1	3	3	6
El Tanque	1	20	0	0	0	0
Escobas	22	860	0	2	2	4
Ezzell	1	0	1	1	1	2
Flour Bluff	7	840	1	2	4	6
Govt. Wells	1	0	0	0	0	0
Haynes	2	45	0	0	0	0
Hoffman	13	720	1	0	4	4
Jacob	2	15	1	1	0	1
Killam	6	360	1	1	2	3
Kingsville	4	0	4	1	0	1
Kohler	0	0	0	0	1	1
Labbe	2	60	0	0	2	2
LaBlanca	2	120	1	2	0	2
Larremore	0	0	0	1	1	3
La Sal Vieja	1	0	1	0	1	1
Loma Alta	0	0	0	0	1	1
Loma Novia	1	70	0	0	0	0
Loma Vista	1	0	1	0	0	0
London	0	0	0	0	1	1
Lopez	1	0	1	1	0	1
Los Olmos	0	0	0	1	0	1
Luby	1	165	0	0	2	2
Luling	7	435	1	1	2	3
Lundell	3	650	1	0	1	1
Lytton Sprgs.	0	0	0	1	0	1
Manford	1	0	1	2	0	2
McCampbell	17	2,535	0	2	16	18
Midway	2	380	0	1	2	3
North Dale	2	35	0	0	0	0
North Pettus	1	40	0	0	1	1
No. Sweden	11	1,630	0	2	13	15
O'Hern	5	580	1	0	2	2
Oilton	2	175	0	2	1	3
Palangana	1	0	1	0	1	1
Pearsall	1	160	0	0	2	2
Piedra Lumbre	2	105	0	1	0	1
Plummer	2	150	0	0	1	1
Plymouth	4	510	1	1	2	3
Ricaby	2	0	2	2	3	5
Rio Grande City	1	0	1	1	0	1
Roma	0	0	0	0	1	1
Salt Flats	4	155	0	0	0	0
Samfordyce	0	0	0	1	0	1
Sandia	2	0	2	2	0	2
Sarnosa	1	110	0	0	1	1
Saxet	35	5,110	3	7	29	36
Saxet Heights	4	285	0	3	2	5
Seven Sisters	5	770	1	2	1	3
Slick	1	0	1	0	0	0
So. Burnell	4	580	0	2	1	3
Stratton	1	50	0	0	0	0
Sweden	1	0	1	1	0	1
Taft	2	675	0	1	0	1
Taylor	0	0	0	0	1	1
Thomas Lockhart	1	75	0	0	1	1
Von Ormy	1	5	0	0	0	0
West Premont	2	150	1	0	0	0
West Tuleta	1	5	0	0	2	2
Zoboroski	1	55	0	2	4	6
Miscellaneous	58	100	55	36	57	93
Ttl. Aug.	313	23,235	98	101	210	311
Ttl. July	253	26,335	75	77	240	317
Difference	60	3,100	23	24	30	6

Gas wells completed: Government Wells, 1; Killam, 1; Saxet, 1; Miscellaneous, 1; total, 4.

WEST CENTRAL AND NORTH TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Archer	16	185	12	1	9	10
Brown	4	55	0	0	3	3
Callahan	8	39	7	0	6	6
Clay	4	1,250	3	0	3	3
Coleman	1	100	0	1	4	5
Collin	0	0	0	0	1	1
Comanche	0	0	0	1	1	2
Cooke	9	160	7	2	12	14
Denton	3	20	0	0	12	12
Eastland	2	0	0	1	3	4
Erath	0	0	0	0	1	1
Foard	0	0	0	0	3	3
Grayson	0	0	0	0	2	2
Hardeman	0	0	0	0	1	1
Haskell	0	0	0	0	1	1
Jack	25	4,227	8	9	46	55
McCulloch	0	0	0	0	2	2
Montague	5	505	1	1	8	9
Palo Pinto	0	0	0	0	4	4
Shackelford	16	455	9	2	14	16
Stephens	1	7	0	0	10	10
Throckmorton	1	10	0	0	3	3
Wichita	21	3,492	6	10	26	36
Wilbarger	5	2,145	1	2	18	20
Wise	0	0	0	0	2	2
Young	19	1,516	13	7	41	48
Ttl. Aug.	140	14,166	67	37	235	272
Ttl. July	254	24,311	110	49	225	274
Difference	114	10,145	43	12	10	2

Gas wells completed: Denton, 2; Eastland, 2; total, 4.

WEST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Andrews	7	2,156	2	5	9	14
Bailey	1	0	1	0	1	1
Brewster	0	0	0	0	3	3
Cochran	0	0	0	0	3	3
Coke	1	0	1	0	1	1
Crane	11	8,767	0	4	24	28
Crockett	2	0	2	0	3	5
Dawson	0	0	0	0	3	3
Ector	44	40,276	4	21	92	113
Edwards	0	0	0	0	2	2
El Paso	0	0	0	0	1	1
Fisher	4	5,052	1	1	10	11
Gaines	4	1,594	2	0	10	10
Glasscock	1	45	0	0	5	5
Hockley	1	0	1	0	2	2
Howard	12	6,704	2	6	19	25
Hudspeth	0	0	0	1	1	2
Jeff Davis	0	0	0	0	1	1
Jones	23	11,024	4	8	37	45
Loving	3	572	2	0	6	6
Mitchell	0	0	0	0	3	3
Pecos	25	7,289	9	4	28	32
Presidio	1	0	1	0	1	1
Reagan	0	0	0	0	2	2
Reeves	0	0	0	0	2	2
Runnels	1	0	1	0	2	2
Schleicher	0	0	0	0	2	2
Scurry	0	0	0	0	3	3
Stonewall	0	0	0	1	1	2
Sutton	0	0	0	1	0	1
Taylor	0	0	0	0	2	2
Terrell	0	0	0	1	0	1
Terry	1	0	1	0	2	2
Upton	23	10,354	0	10	38	48
Ward	31	24,749	1	16	50	66
Winkler	45	30,594	1	13	55	68
Yoakum	3	1,189	1	0	6	6
Ttl. Aug.	244	150,365	37	92	430	522
Ttl. July	321	212,815	41	102	442	544
Difference	77	62,450	4	10	12	22

Gas wells completed: Winkler, 1.

EAST TEXAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Anderson	3	196	0	0	3	3
Angelina	0	0	0	0	2	2
Bowie	0	0	0	1	2	3
Cherokee	1	25	0	1	1	2
Ellis	0	0	0	0	1	1
Falls	0	0	0	0	2	2
Fannin	0	0	0	0	3	3
Franklin	10	3,715	0	0	10	10
Freestone	1	0	1	0	3	3
Gregg	106	8,873	0	58	51	109
Henderson	1	162	0	3	7	10
Hopkins	5	1,854	0	0	2	2
Houston	0	0	0	1	2	3
Hunt	1	0	1	0	1	1
Kaufman	0	0	0	0	1	1
Lamar	1	0	1	0	1	1
Leon	0	0	0	1	1	2
Limestone	0	0	0	0	2	2
Nacogdoches	0	0	0	1	0	1
Navarro	0	0	0	0	3	3
Red River	1	0	1	0	2	2
Rusk	70	3,637	4	25	35	60
Smith	13	692	0	6	10	16
Titus	35	10,979	1	3	24	27
Upshur	16	410	0	8	22	30
Van Zandt	0	0	0	0	4	4
Ttl. Aug.	264	30,543	8	108	195	303
Ttl. July	334	29,404	20	102	201	303
Difference	70	1,139	12	6	6	0

Gas wells completed: Anderson County, 6.

TEXAS PANHANDLE

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Briscoe	0	0	0	0	1	1
Carson	8	4,143	0	4	15	19
Collingsworth	0	0	0	0	2	2
Dallam	0	0	0	0	1	1
Deaf Smith	0	0	0	0	1	1
Dickens	0	0	0	0	1	1
Gray	26	14,154	0	25	52	77
Hansford	0	0	0	0	1	1
Hartley	0	0	0	1	0	1
Hutchinson	25	9,860	1	24	77	101
Moore	10	367	0	3	26	29
Ochiltree	0	0	0	0	1	1
Roberts	0	0	0	0	2	2
Wheeler	3	85	1	5	4	9
Ttl. Aug.	72	28,609	2	62	184	246
Ttl. July	80	30,050	1	55	188	243
Difference	12	1,441	0	7	4	3

Gas wells completed: Carson, 1; Gray, 1; Hutchinson, 1; Moore, 9; Wheeler, 1; total, 13.

EAST TEXAS (Border Counties)

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bowie	0	0	0	0	3	3
Cass (Rodessa)	9	1,677	0	3	11	14
Harrison	1	8	0	0	3	3
Marion (Rodessa)	5	3,594	0	2	8	10
Marion-other	4	32	2	0	4	4
Panola	1	15	0	1	5	6
Shelby	1	0	0	1	2	3
Ttl. Aug.	21	5,326	2	7	36	43
Ttl. July	24	7,288	3	6	40	46
Difference	3	1,962	1	1	4	3

Gas wells completed: Shelby County, 1.

GULF COAST

Texas

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Amelia	23	6,866	3	0	11	11
Anahuac	9	4,168	0	2	2	4
Bay City	1	470	0	0	1	1
Barbers Hill	1	0	1	0	2	2
Big Hill	1	0	1	0	2	2
Big Creek	1	207	0	0	0	0
Blue Ridge	1	456	0	0	0	0
Boling	1	546	0	0	0	0
Buckeye	0	0	0	1	1	2
Clay Creek	0	0	0	0	1	1
Clinton	0	0	0	0	1	1
Cleveland	1	601	0	0	1	1
Conroe	1	1,004	0	0	0	0
Cotton Lake	1	0	1	0	1	1
Dickinson	6	3,561	0	0	8	8
Edna	0	0	0	0	1	1
Fairbanks	1	294	0	0	0	0
Fannett	1	0	1	0	1	1
Five Corners	1	204	0	1	0	1
Friendswood	2	672	1	0	2	2
Ganado	0	0	0	0	1	1
Greta	2	0	2	2	1	3
Goose Creek	0	0	0	0	1	1
Hardin	3	693	1	1	2	3
Hankamer	0	0	0	0	1	1
Hastings	43	23,419	0	2	22	26
Hawkinsville	0	0	0	0	1	1
Heyser	11	1,722	3	2	7	9
High Island	0	0	0	1	3	4
Hull	5	954	2	0	3	3
Humble	1	12	0	0	0	0
Keeran	0	0	0	0	1	1
Labelle	0	0	0	0	1	1
Louise	1	59	0	0	1	1
Lockridge	4	2,077	0	1	4	5
Magnet	2	407	0	1	3	4
Manvel	2	984	0	0	2	2
McFaddin	0	0	0	0	1	1
Markham	2	292	0	0	0	0
Nome	4	847	1	2	1	3
North Cheek	0	0	0	0	1	1
Old Ocean	1	275	0	0	2	2
Orchard	1	197	0	0	1	1
Palacios	0	0	0	0	4	4
Pickett Ridge	0	0	0	0	1	1
Pierce Junction	1	391	0	0	0	0
Placedo	3	457	0	0	3	3
Port Neches	0	0	0	0	1	1
Refugio	3	331	1	0	3	3
Sandy Point	1	16	0	0	1	1
Saratoga	1	29	0	0	0	0
Silsbee	3	556	1	0	2	2
Seabreeze	1	0	1	0	2	2
Segno	7	2,530	1	1	2	3
South Houston	3	610	1	0	3	3
Spindletop	2	180	1	1	1	2
Spurger	0	0	0	0	1	1
Telfener	1	0	1	0	1	1
Tomball	7	2,645	0	0	4	4
Turtle Bay	2	240	0	0	4	4
Quintana-O'Connor	17	25,183	0	3	3	6

Van Vleck	1	353	0	0	1	1
W. Columbia	1	624	0	1	1	2
Withers	2	287	1	1	3	4
Miscellaneous	10	0	10	6	16	22
Ttl. Aug.	200	85,419	37	31	152	183
Ttl. July	135	60,249	24	30	147	177
Difference	65	25,170	13	1	5	6

Gas wells completed: Amelia, 1; Anahuac, 1; Heyser, 1; Hull, 1; Tomball, 1; Turtle Bay, 1; total, 6.

Louisiana

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Anse La Butte	0	0	0	0	1	1
Abbeville	0	0	0	0	1	1
Bayou Blue	2	0	1	1	0	1
Bay St. Elaine	1	972	0	0	1	1
Bayou Cocotriz	2	1,025	1	2	0	2
Big Lake	0	0	0	0	2	2
Black Bayou	0	0	0	0	1	1
Black Prince Island	1	443	0	0	0	0
Caillou Island	2	793	1	1	0	1
Cameron Meadows	0	0	0	0	4	4
Charenton	1	0	1	1	3	4
China	1	54	0	0	0	0
Choctaw	1	1,180	0	0	1	1
Darrow	1	0	1	0	1	1
Dog Lake	1	1,481	0	0	1	1
Edgerly	0	0	0	0	1	1
Fausse Point	0	0	0	0	1	1
Four Isle	0	0	0	0	1	1
Gillis	1	520	0	0	4	4
Garden Island	0	0	0	0	1	1
Gueydan	1	56	0	0	0	0
Hackberry	5	2,078	1	1	9	10
Horseshoe Bayou	1	1,152	0	0	0	0
Iowa	1	107	0	0	2	2
Jeanerette	1	900	0	0	1	1
Jennings	8	1,992	1	2	13	15
Lafitte	0	0	0	0	3	3
Lake Barre	0	0	0	0	1	1
Lake Hermitage	0	0	0	0	1	1
Lake Washington	0	0	0	0	1	1
Lake Long	0	0	0	0	1	1
Lake Pelto	1	1,291	0	0	0	0
Laritte	0	0	0	0	1	1
Lockport	1	175	0	1	0	1
Loesville	2	691	0	0	1	1
New Iberia	1	576	0	1	5	6
So. Roanoke	0	0	0	0	1	1
Starks	0	0	0	1	2	3
St. Martinsville	0	0	0	0	1	1
Sulphur	1	655	0	0	3	3
Tepetate	2	231	0	0	1	1
Valentine	1	312	0	0	3	3
Venice	1	495	0	1	0	1
Vinton	1	540	0	0	2	2
White Castle	0	0	0	1	0	1
Miscellaneous	13	0	13	8	17	25
Ttl. Aug.	55	17,719	20	21	93	114
Ttl. July	35	9,808	13	14	106	120
Difference	20	7,911	7	7	13	6

Gas wells completed: Bayou Blue, 1.

NORTH LOUISIANA

Summary of Field Operations

Parish—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bienville	2	0	1	0	2	2
Bossier	6	15	2	2	3	5
Caddo-Rodessa	7	4,251	0	4	15	19
Caddo-other	10	445	2	3	22	25
Caldwell	1	0	1	0	0	0
Claiborne	14	13,371	0	7	27	34
Concordia	0	0	0	1	1	2
De Soto	5	0	4	0	5	5
Franklin	0	0	0	0	2	2
Jackson	0	0	0	0	1	1
LaSalle	2	5	1	3	3	6
Lincoln	4	5,496	0	2	9	11
Morehouse	4	0	0	2	4	6
Natchitoches	0	0	0	0	1	1
Ouachita	7	0	1	3	4	7
Red River	0	0	0	0	8	8
Sabine	2	0	2	1	3	4
Tensas	0	0	0	0	1	1
Union	8	0	0	2	5	7
Webster	3	1,553	0	1	12	13
Winn	1	0	1	0	1	1
Ttl. Aug.	76	25,136	15	31	129	160
Ttl. July	85	22,154	16	29	111	140
Difference	9	2,982	1	2	18	20

Gas production: Caddo-Rodessa, 1 well, 19,000,000 feet; Bienville, 1 well, 25,000,000 feet; De Soto, 1 well, 2,000,000 feet; Morehouse, 4 wells, 8,000,000 feet; Ouachita, 6 wells, 9,000,000 feet; Union, 8 wells, 43,000,000 feet; Bossier, 3; Claiborne, 1; total, 25.

ARKANSAS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Ashley	0	0	0	0	1	1
Calhoun	0	0	0	1	0	1
Cleveland	0	0	0	0	1	1
Clark	0	0	0	0	3	3
Columbia	0	0	0	1	2	3
Critterton	0	0	0	0	1	1
Cross	0	0	0	0	1	1
Crew	0	0	0	0	1	1
Hempstead	1	0	1	0	2	2
Howard	0	0	0	1	0	1
LaFayette	0	0	0	0	1	1
Lonoke	0	0	0	1	2	3
Miller	7	1,752	1	4	17	21
Monroe	1	0	1	0	1	1
Nevada	1	230	0	3	2	5
Ouachita	1	0	1	0	1	1
Pulaski	0	0	0	0	1	1
Pike	0	0	0	0	1	1
Saline	0	0	0	0	1	1
St. Francis	1	0	1	0	1	1
Union	10	4,510	1	0	7	7
Ttl. Aug.	22	6,492	6	11	47	58
Ttl. July	18	5,097	10	7	52	59
Difference	4	1,395	4	4	5	1

Gas wells completed, none.

ALABAMA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Choctaw	0	0	0	0	1	1
Green	0	0	0	0	1	1
Houston	0	0	0	0	1	1
Ttl. Aug.	0	0	0	0	3	3
Ttl. July	0	0	0	1	2	3
Difference	0	0	0	1	1	0

MISSISSIPPI

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bolivar	0	0	0	0	2	2
Calhoun	0	0	0	0	1	1
Claiborne	0	0	0	0	1	1
Franklin	0	0	0	1	0	1
Grenada	0	0	0	1	0	1
George	1	0	1	0	0	0
Harrison	0	0	0	0	1	1
Hancock	0	0	0	0	1	1
Hinds	1	0	1	0	1	1
Jones	0	0	0	0	1	1
Kemper	0	0	0	1	0	1
Lamar	1	0	1	0	1	1
Madison	1	0	1	0	1	1
Pike	0	0	0	0	1	1
Simpson	0	0	0	1	0	1
Sunflower	0	0	0	1	0	1
Washington	0	0	0	0	1	1
Wilkinson	2	0	2	0	1	1
Yalobusha	0	0	0	1	1	2
Ttl. Aug.	6	0	6	6	14	20
Ttl. July	0	0	0	6	12	18
Difference	6	0	6	0	2	2

FLORIDA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Lake	0	0	0	0	2	2
Nassau	0	0	0	0	1	1
Suwannee	0	0	0	0	1	1
Ttl. Aug.	0	0	0	0	4	4
Ttl. July	0	0	0	1	3	4
Difference	0	0	0	1	1	0

ROCKY MOUNTAIN AREA

Colorado

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Adams	0	0	0	0	2	2
Archuleta	0	0	0	0	5	5
Bent	0	0	0	0	1	1
Boulder	0	0	0	0	2	2
La Plata	0	0	0	0	3	3
Larimer	0	0	0	0	3	3
Mesa	0	0	0	0	2	2
Moffat	2	60	0	0	5	5
Park	0	0	0	0	3	3
Rio Blanco	0	0	0	0	2	2
Miscellaneous	0	0	0	0	16	16
Ttl. Aug.	2	60	0	0	44	44
Ttl. July	1	0	1	2	44	46
Difference	1	60	1	2	0	2

Wyoming

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Albany	2	146	0	1	4	5
Big Horn	0	0	0	0	8	8
Carbon	2	0	1	1	7	8
Converse	0	0	0	1	5	6
Fremont	0	0	0	1	5	6
Lincoln	0	0	0	0	4	4
Natrona	0	0	0	4	5	9
Niobrara	1	0	1	3	12	15
Park	1	400	0	1	2	3
Sweetwater	1	0	0	2	2	4
Uinta	0	0	0	0	3	3
Washakie	6	193	3	0	2	2
Weston	0	0	0	0	7	7
Miscellaneous	0	0	0	0	5	5
Ttl. Aug.	13	739	5	14	71	85
Ttl. July	12	1,055	6	8	71	79
Difference	1	316	1	8	0	6

Montana

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Big Horn	2	0	0	0	3	3
Carbon	0	0	0	0	5	5
Fergus	1	0	1	0	5	5
Glacier	9	1,464	1	2	19	21
Hill	2	0	2	0	0	0
Petroleum	0	0	0	0	3	3
Phillips	0	0	0	0	2	2
Pondera	0	0	0	1	1	2
Toole	12	292	4	0	23	23
Yellowstone	0	0	0	1	2	3
Miscellaneous	0	0	0	0	13	13
Ttl. Aug.	26	1,756	8	4	76	80
Ttl. July	29	1,342	8	5	67	72
Difference	3	414	0	1	9	8

Utah

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Ttl. Aug.	0	0	0	0	9	9
Ttl. July	0	0	0	0	9	9
Difference	0	0	0	0	0	0

Nebraska

Summary of Field Operations

	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Ttl. Aug.	0	0	0	0	7	7
Ttl. July	0	0	0	0	7	7
Difference	0	0	0	0	0	0

New Mexico

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Bernalillo	0	0	0	0	1	1
McKinley	0	0	0	0	4	4
Santa Fe	0	0	0	0	2	2
San Juan	1	102	0	0	5	5
San Miguel	0	0	0	0	3	3
Socorro	0	0	0	0	1	1
Torrance	0	0	0	0	1	1
Valencia	0	0	0	0	3	3
Lea	40	26,753	4	9	101	110
Eddy	8	1,422	2	4	39	43
Roosevelt	0	0	0	0	1	1
Chaves	0	0	0	0	1	1
Dona Ana	0	0	0	0	1	1
Otero	0	0	0	0	2	2
Curry	0	0	0	0	1	1
Ttl. Aug.	49	28,277	6	13	166	179
Ttl. July	62	43,632	6	43	166	209
Difference	13	15,355	0	30	0	30

Gas wells completed: Lea, 3.

INDIANA

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Crawford	0	0	0	0	1	1
Daviess	0	0	0	0	1	1
DeKalb	0	0	0	0	1	1
Delaware	1	0	0	0	0	0
DuBois	0	0	0	0	0	0
Gibson	0	0	0	0	2	2
Harrison	0	0	0	0	2	2
Knox	0	0	0	0	2	2
Legrange	0	0	0	0	2	2
Martin	1	0	1	0	0	0
Perry	1	15	0	0	4	4
Pike	1	20	0	0	9	9
Porter	0	0	0	0	1	1
Posey	0	0	0	0	1	1
Spencer	0	0	0	0	1	1
Sullivan	2	6	0	0	0	0
Vanderburgh	0	0	0	0	1	1
Vigo	1	60	0	0	3	3
Wabash	0	0	0	0	1	1
Ttl. Aug.	7	101	1	0	32	32
Ttl. July	15	115	2	0	20	20
Difference	8	14	1	0	12	12

Gas wells completed: Delaware, 1.

EASTERN KENTUCKY

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Wolfe	2	2	0	0	2	2
Lee	13	347	3	0	12	12
Powell	2	6	0	0	4	4
Elliott	0	0	1	0	0	0
Magoffin	2	7	1	1	6	7
Knott	0	0	0	3	7	10
Floyd	0	0	0	1	6	7
Martin	0	0	0	0	9	9
Pike	0	0	0	0	1	1
Johnson	0	0	1	0	3	3
Ttl. Aug.	18	362	6	5	50	55
Ttl. July	19	204	3	7	17	24
Difference	1	158	3	2	33	21

Gas wells completed: Knott, 10; Floyd, 5; Martin, 4; Pike, 2; Johnson, 1; total, 22.

WESTERN KENTUCKY

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rigs	Dlg.	Ttl.
Hancock	22	173	11	0	10	10
Ohio	42	280	18	0	14	14
Daviess	14	210	4	0	5	5
McLean	12	480	4	0	5	5
Breckenridge	1	0	0	0	1	1
Medcalf	1	0	1	0	0	0
Muhlenberg	1	0	1	0	0	0
Hopkins	1	0	1	0	1	1
Henderson	1	5	0	0	0	0
Butler	4	35	3	0	0	0
Ttl. Aug.	99	1,183	43	0	36	36
Ttl. July	63	1,360	22	1	47	48
Difference	36	177	21	1	11	12

Gas wells completed: Hancock, 5; Ohio, 5; Daviess, 2; McLean, 1; Breckenridge, 1; total, 14.

OHIO FIELD

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Ashland	4	8	0	1	4	5
Ashtabula	0	0	0	0	0	0
Athens	12	2	1	2	6	8
Belmont	3	0	2	0	0	0
Coshocton	0	0	0	1	5	6
Cuyahoga	0	0	0	0	2	2
Delaware	0	0	0	0	0	0
Fairfield	1	0	0	1	1	2
Guernsey	6	0	3	1	4	5
Gallia	0	0	0	0	0	0
Huron	0	0	0	3	2	5
Holmes	0	0	1	1	5	6
Hocking	2	40	1	0	2	2
Jefferson	0	0	0	0	0	0
Knox	6	365	2	6	7	13
Lawrence	0	0	0	1	0	1
Licking	14	413	3	2	8	10
Lorain	4	0	2	4	3	7
Medina	3	16	0	1	3	4
Meigs	10	0	4	1	10	11
Morgan	3	0	0	0	0	0
Monroe	2	0	1	0	5	5
Muskingum	3	65	2	2	7	9
Noble	7	3	2	0	12	12
Perry	5	40	0	5	4	9
Portage	0	0	0	0	0	0
Richland	0	0	0	0	0	0
Stark	2	0	0	2	8	10
Summit	2	0	0	0	0	0
Tuscarawas	2	0	1	2	6	9
Wayne	3	85	1	2	0	3
Washington	9	5	6	0	14	14
Vinton	0	0	0	0	0	0
Ttl. Aug.	103	1,042	32	38	118	156
Ttl. July	118	735	31	54	123	177
Difference	15	307	1	16	5	21

Gas wells completed: Ashland, 3; Athens, 10; Belmont, 1; Fairfield, 1; Guernsey, 3; Knox, 1; Licking, 3; Lorain, 2; Medina, 1 Meigs, 6; Morgan, 3; Monroe, 1; Noble, 3; Perry, 3; Stark, 2; Summit, 2; Tuscarawas, 1; Wayne, 1; Washington, 2; total, 49.

PENNSYLVANIA GRADE FIELDS

Summary of Field Operations

Field—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bradford	*237	1,318	0	9	187	196
Allegany	†137	88	0	4	97	101
N.Y.-Pa. Gas	6	0	2	9	24	13
Butler-Armstrong	9	120	4	2	7	9
Venango-Clarion	‡44	39	1	3	15	18
S.W. Pa.	16	612	4	8	55	63
S.E. Ohio	46	897	10	14	58	72
West Va.	69	99	9	40	206	246
Ttl. Aug.	564	3,173	30	89	649	738
Ttl. July	638	1,331	46	81	672	753
Difference	74	1,842	16	8	23	15

*Includes 79 water intake wells. †Includes 49 water intake wells. ‡Includes 11 presure wells.

Gas wells completed: N.Y.-Pa. field, 4; Butler-Armstrong, 1; Venango-Clarion, 2; S.W. Pa., 6; S.E. Ohio, 13; West Virginia, 44; total, 70.

MICHIGAN

Summary of Field Operations

Pool—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Beaverton	0	534	0	0	1	1
Buckeye	13	5,346	0	4	27	31
Clayton	12	436	2	2	10	12
Crystal	1	90	0	2	3	5
Currie	0	0	0	0	1	1
Curtice	0	0	0	0	2	2
Deerfield	1	156	0	0	0	0
N. Gibson	0	0	0	0	2	2
Leaton	1	75	0	0	0	0
Mecosta	1	0	0	0	2	2
Mt. Pleasant	2	155	0	0	1	1
Porter-Yost	1	57	0	0	5	5
Ravenna	0	0	0	0	1	1
Rosebush	0	0	0	0	1	1
Salem	5	2,960	0	2	9	11
Sherman	3	2,326	0	2	10	12
West Branch	7	742	0	2	10	12
Winegars	16	8,306	1	6	34	40
Wise Gas	1	0	0	0	2	2
Wildcats	15	12	14	4	58	62
Ttl. Aug.	79	21,180	17	24	179	203
Ttl. July	87	35,105	24	*69	170	239
Difference	8	13,925	7	45	9	36

*Included locations.

Gas wells completed: Buckeye, 1; Clayton, 4; Mecosta, 1; Wise Gas, 1; total, 7.

ILLINOIS

Summary of Field Operations

County—	Comp.	Prod.	Dry	Rgs.	Dlg.	Ttl.
Bond	0	0	0	0	2	2
Clay	11	10,576	0	6	19	25
Clark	0	0	0	0	1	1
Christian	0	0	0	0	1	1
Fayette	0	0	0	1	1	2
Richland	2	2,977	0	0	6	6
Randolph	0	0	1	0	1	1
Marion	16	1,289	5	3	35	38
Clinton	2	74	1	0	3	3
Wayne	0	0	1	0	0	6
Perry	0	0	0	0	1	1
Jefferson	0	0	0	1	1	2
Crawford	0	0	0	0	3	3
McDonough	0	0	0	0	1	1
Lawrence	0	0	0	0	1	1
Effingham	1	0	1	0	0	0
Edgar	1	5	0	0	0	0
Coles	0	0	0	0	1	1
Shelby	0	0	0	1	0	1
White	0	0	0	0	1	1
Washington	0	0	0	0	2	2
Hamilton	0	0	0	1	0	1
Jasper	0	0	0	0	1	1
Pope	0	0	0	0	1	1
Ttl. Aug.	34	14,921	9	13	88	101
Ttl. July	17	4,986	2	7	58	65
Difference	17	9,935	7	6	30	36

WILDCAT OPERATIONS

CALIFORNIA

IMPORTANT WELLS AND NORTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Shell Oil, No. 2-2 Capitan, Santa Barbara Co.	32- 5-30	2,936	O.S. drlg.
Hancock-Bush, No. 2-H Santa Maria, Santa Barbara	30-10-33	3,465	sd. sh. drlg.
Hancock-Bush, No. 1-R Santa Maria, Santa Barbara	25-10-34	5,067	pump. 510 b.d.
Macrate, A. N., No. 2-F Santa Maria, Santa Barbara	26-10-34	4,001	cleaning out
S. M. Oil, No. 1 Porto, Santa Maria, Santa Barbara	27-10-34	4,450	pump. 460 b.d.
Sed Oil, No. 1 Mills, Santa Maria, Santa Barbara Co.	27-10-34	4,052	sd. sh. drlg.
Moore, E. H., No. 2 Sugar, Santa Maria, Santa Barbara	19-10-34	2,197	sd. sh. drlg.
Ohio Oil, No. 1-M Santa Maria, Santa Barbara Co.	21-10-34	4,060	sd. sh. drlg.
Union Oil, No. 2-R Santa Maria, Santa Barbara Co.	21-10-34	4,457	flow. 1,067 b.d.
Union Oil, No. 1 Cook, Santa Maria, Santa Barbara	30-10-33	3,770	pump. 217 b.d.
Union Oil, No. 4 Battle, Santa Maria, Santa Barbara	24-10-34	2,709	cleaning out
Union Oil, No. 2 LeRoy, Santa Maria, Santa Barbara	24-10-35	3,385	sd. sh. drlg.
Crude Oil Drlg., No. 1 Casmalia, Santa Barbara Co.	19- 9-34	530	idle
Pac. Western Oil, No. 2 Santa Maria, Santa Barbara	21-10-34	2,987	sd. sh. drlg.
Rice Ranch Oil, No. 4 Orcutt, Santa Barbara Co.	23- 9-34	4,330	P.B. 3,732
So. Cal. Drlg., No. 1-H Santa Maria, Santa Barbara	9- 9-33	5,003	idle
101 Oil, No. 1 Pt. Concepcion, Santa Barbara Co.	35- 5-33	3,072	br. sh. drlg.
Tide Water A. O., No. 1-L Santa Rita, Santa Barbara	3- 6-33	3,094	sd. sh. drlg.
Hancock Oil, No. 2 Los Alamos, Santa Barbara Co.	6- 7-32	5,690	hd. sh. drlg.
Arnold Oil, No. 2 Los Alamos, Santa Barbara Co.	8- 8-33	6,373	reaming
Field, O. C., No. 1-S.R., Lompoc, Santa Barbara Co.	11- 7-33	2,165	bl. sh. drlg.
United Western Oil, No. 1 Los Olivos, Santa Barbara	15- 7-30	1,971	sd. sh. drlg.
Del Mar Oil, No. 1 Summerland, Santa Barbara Co.	16- 4-26	3,570	sd. sh. drlg.
Petroleum Securities, No. 6 Ranch, Shiells, Ventura	3- 3-19	2,641	sd. sh. drlg.
Texas Co., No. 133 Shiells, Ventura Co.	4- 3-19	4,128	cmtd. 4,123
Union Oil, No. 16 Bardsdale, Ventura Co.	12- 3-20	6,224	sd. sh. drlg.
Texas Co., No. 1 Pierce, Camarillo, Ventura Co.	20- 2-21	3,890	hd. sh. drlg.
Richfield Oil, No. 1 McFarland, Camarillo, Ventura	13- 2-21	2,885	hd. sh. drlg.
Condor Oil, No. 1 Sespe, Ventura Co.	6- 4-19	2,088	O.S. drlg.
Ivers, H. A., No. 14 Star, Sespe, Ventura Co.	1- 4-20	1,502	rd. sd. drlg.
Williamson Oil, No. 1 Sespe, Ventura Co.	1- 4-20	312	hd. sd. drlg.
Speik Oil, No. 2 Sespe, Ventura Co.	33- 5-19	3,050	sd. sh. drlg.
Colima Oil, No. 2 Sespe, Ventura Co.	25- 5-19	3,400	fish
Commander Oil, No. 7-F Piru, Ventura Co.	13- 4-19	286	sd. sh. drlg.
Skyline Oil, No. 1-H Hopper Canyon, Ventura Co.	13- 4-18	871	cleaning out
Vai, Giovani, No. 1 Ojai, Ventura Co.	4- 4-21	1,397	hd. sh. drlg.
C. C. M. Oil, No. 2 Padre Canyon, Ventura Co.	23- 3-24	7,480	fish. D.P.
C. C. M. Oil, No. 16 Rincon, Ventura Co.	8- 3-24	2,775	hd. sh. drlg.
Richfield Oil, No. 2 Hobson, Rincon, Ventura Co.	8- 3-24	4,788	C.P. 4,712
Rincon Pet., No. 1 Shudde, Rincon, Ventura Co.	tideland	2,850	cleaning out
Oxnard Oil, No. 1 Oxnard, Ventura Co.	10- 1-22	5,375	sd. sh. drlg.
Vaca Oil, No. 2 Oxnard, Ventura Co.	6- 1-21	3,765	reaming
Tide Water A. O., No. 28 V.L.W., Ventura, Ventura	26- 3-23	6,451	sd. sh. drlg.
Tide Water A. O., No. 30 Lloyd, Ventura, Ventura	27- 3-23	4,281	sd. sh. drlg.
Tide Water A. O., No. 61 Lloyd, Ventura, Ventura	27- 3-23	6,305	sd. sh. drlg.
Tide Water A. O., No. 62 Lloyd, Ventura, Ventura	27- 3-23	5,850	sd. sh. drlg.
Tide Water A. O., No. 137 Lloyd, Ventura, Ventura	27- 3-23	9,540	sd. sh. drlg.
Tide Water A. O., No. 18 Hartman, Ventura, Ventura	22- 3-23	6,160	recmtd. 6,155
Shell Oil, No. 90 Taylor, Ventura Co.	30- 3-23	5,875	sd. sh. drlg.
Shell Oil, No. 35 Gosnell, Ventura, Ventura Co.	28- 3-23	9,265	flow. 1,146 b.d.
General Pet., No. 17 Barnard, Ventura, Ventura Co.	23- 3-23	8,176	redrlg. 7,891
General Pet., No. 13 Notten, Ventura, Ventura Co.	28- 3-23	9,484	redrlg. 7,665
Den Petroleum, No. 1 Devils Den, Kern Co.	20-25-19	4,595	br. sh. drlg.
Goodrum, George, No. 1 Devils Den, Kern Co.	24-25-18	287	br. sh. drlg.
Tide Water A. O., No. 10-E-3 Lost Hills, Kern Co.	3-26-20	1,176	O.S. drlg.
Standard Oil, No. 4 United, Lost Hills, Kern Co.	2-26-20	1,296	O.S. drlg.
Argo Pet., No. 1-F Lost Hills, Kern Co.	11-26-20	1,294	recmtd. 1,250
Texas Co., No. 1-A Overall, Lost Hills, Kern Co.	33-25-20	2,254	hd. sd. drlg.
Birch-Ranch Oil, No. 1 Lovett, McKittrick, Kern Co.	10-30-21	2,781	sd. sh. drlg.
Continental Oil, No. 2 Wasco, Kern Co.	8-27-24	10,365	sd. sh. drlg.
Belridge Oil, No. 43-26 North Belridge, Kern Co.	26-27-20	5,280	br. sh. drlg.
Belridge Oil, No. 53-26 North Belridge, Kern Co.	26-27-20	5,997	br. sh. drlg.
Belridge Oil, No. 61-26 North Belridge, Kern Co.	26-27-20	7,594	br. sh. drlg.
Belridge Oil, No. 28-1 North Belridge, Kern Co.	1-28-20	7,261	br. sh. drlg.
Tide Water A. O., No. 6 North Belridge, Kern Co.	34-27-20	8,700	sd. sh. drlg.
Texas Co., No. 1 Martin, North Belridge, Kern Co.	22-27-20	7,876	cmtd. 7,861
General Pet., No. 1 St. Helens, Belridge, Kern Co.	12-28-20	304	sd. sh. drlg.
Shell Oil, No. 1 L. Olcese, Round Mountain, Kern Co.	21-28-29	1,842	pump. O. & W.
Shell Oil, No. 15 Freeman, Round Mountain, Kern Co.	20-28-29	1,198	sd. sh. drlg.
Honolulu Oil, No. 15 Round Mountain, Kern Co.	20-28-29	1,088	sd. sh. drlg.
Honolulu Oil, No. 25 Round Mountain, Kern Co.	18-28-29	1,915	rig. to pump
Tampico Pet., No. 3 Round Mountain, Kern Co.	17-28-29	905	sd. sh. drlg.
Tavis, J. J., No. 1 Round Mountain, Kern Co.	4-29-29	3,300	gr. sd. drlg.
Cal-Western Oil, No. 4 C.C., Round Mountain, Kern	12-28-28	1,884	pump. 448 b.d.
Cal-Western Oil, No. 5 C.C., Round Mountain, Kern	12-28-28	1,691	sd. sh. drlg.
Oils, Inc., of California, No. 7-2 Kern Front, Kern Co.	13-28-27	1,289	P.B. 1,135
Malone, F. H., No. 3 Mabry, Kern Front, Kern Co.	4-28-27	1,450	gr. sd. drlg.
Tide Water A. O., No. 8 Wilcox, Kern Front, Kern Co.	4-28-27	2,230	sd. sh. drlg.
California Star Oil, No. 2-80 Kern Front, Kern Co.	22-28-27	2,650	cleaning out
Texas Co., No. 9 Lehman, Kern Front, Kern Co.	23-28-27	2,065	O.S. drlg.
Shell Oil, No. 1 Bellview, Kern Co.	31-29-27	9,100	sd. sh. drlg.
Well Developers, Inc., No. 1 Kern River, Kern Co.	16-28-28	310	sd. sh. drlg.
Fuhrman, A., No. 10 Kern River, Kern Co.	28-28-28	450	sd. sh. drlg.
McKeon, Inc., No. 1-A Kern River, Kern Co.	32-28-28	1,275	cleaning out
Vedder, D. G., No. 1 B.M.B., Mount Poso, Kern Co.	32-26-28	186	sd. sh. drlg.
Trico O. & G., No. 1 Modoc, Mount Poso, Kern Co.	20-26-28	411	sd. sh. drlg.
Ring Oil, No. 1 Loudon, Mount Poso, Kern Co.	32-26-28	1,738	pump. 320 b.d.
Vedder Pet., No. 29-1 Bowles, Mount Poso, Kern Co.	29-26-28	1,795	pump. 302 b.d.
Vedder Pet., No. 29-2 Bowles, Mount Poso, Kern Co.	29-26-28	1,786	O.S. drlg.
Pacific O.& G., No. 1 Davidson, Mount Poso, Kern Co.	36-27-27	1,874	sd. sh. drlg.
Framac Oil, No. 1 Brown, Mount Poso, Kern Co.	22-27-27	1,351	idle
Tide Water A. O., No. 2 Newhope, Mount Poso, Kern	29-27-27	2,775	wet; abd.
Union Oil, No. 12 Tribe, Mount Poso, Kern Co.	28-27-28	1,855	sd. sh. drlg.
H. & H. Oil, No. 1 Neff, Fruitvale, Kern Co.	23-29-27	3,793	fish. D.P.
Meridian Oil, No. 5 Turner, Fruitvale, Kern Co.	23-29-27	3,050	O.S. drlg.
Western Gulf Oil, No. 8 Red Ribbon, Fruitvale, Kern	27-29-27	3,286	sd. sh. drlg.
Western Gulf Oil, No. 27 K.C.L., Fruitvale, Kern Co.	22-29-27	3,900	sd. sh. drlg.
Siemon Bros., No. 1 Krebs, Fruitvale, Kern Co.	15-29-27	3,985	pump. 50 b.d.
Sandy Oil, No. 2 Fruitvale, Kern Co.	26-29-27	3,590	P.B. 3,570
Section Six Oil, No. 1 Mountain View, Kern Co.	6-31-29	4,004	sd. sh. drlg.
Ohio Oil, No. 6 Derby, Mountain View, Kern Co.	33-30-29	266	sd. sh. drlg.
Barnsdall Oil, No. 2-N Mountain View, Kern Co.	19-30-29	4,841	swabbing
Mohawk Pet., No. 5 Earl Fruit, Mountain View, Kern	4-31-29	5,450	flow. 1,080 b.d.
North American Oil, No. 1-T Mountain View, Kern	9-31-29	5,550	flow. 1,390
Hogan Pet., No. 4 Symons, Mountain View, Kern Co.	4-31-29	6,188	flow. water
Hogan Pet., No. 3 Peters, Mountain View, Kern Co.	5-31-29	5,460	P.B. 5,420
Hogan Pet., No. 9 Wharton, Mountain View, Kern Co.	32-30-29	3,986	sd. sh. drlg.
Greer, P. H., No. 1 Perrel, Mountain View, Kern Co.	9-31-29	5,502	cmtd. 5,335
Greer, P. H., No. 2 Perrel, Mountain View, Kern Co.	9-31-29	5,711	flow. 1,600 b.d.
General Pet., No. 2 Freeport, Mountain View, Kern	19-30-29	3,462	sd. sh. drlg.
General Pet., No. 1 Houchin, Arvin, Kern Co.	27-31-29	5,281	sd. sh. drlg.
Arkelo Oil, No. 1 Lerdo, Kern Co.	23-28-26	10,050	redrlg. 7,861
Union Oil, No. 1-34 Rio Bravo, Kern Co.	34-28-25	10,460	sd. sh. drlg.
Continental Oil, No. 1 Rosedale, Kern Co.	12-29-26	10,210	sidetrk. 5,654
Superior Oil, No. 9 KCL, Greeley, Kern Co.	3-30-26	6,198	sd. sh. drlg.
Standard Oil, No. 11-7 KCL, Greeley, Kern Co.	20-29-26	7,756	flow. 2,570 b.d.
Standard Oil, No. 11-8 KCL, Greeley, Kern Co.	18-29-26	6,371	sd. sh. drlg.
Standard Oil, No. 12-2 KCL, Greeley, Kern Co.	16-29-26	6,335	sd. sh. drlg.
Shell Oil, No. 4-30 Ten Section, Kern Co.	33-30-26	8,155	O.S. drlg.
Shell Oil, No. 61-31-B Ten Section, Kern Co.	30-30-26	6,554	sd. sh. drlg.
Lilly Oil, No. 1 Midway-Sunset, Kern Co.	36-32-23	2,357	cleaning out
Merritt Annex Oil, No. 6 Midway-Sunset, Kern Co.	25-12-24	1,962	sd. sh. drlg.
C. C. M. Oil, No. 25-21 Midway-Sunset, Kern Co.	21-32-23	2,730	br. sh. drlg. z
C. C. M. Oil, No. 43-21 Midway-Sunset, Kern Co.	21-32-23	2,641	br. sh. drlg.
C. C. M. Oil, No. 1-US, Midway-Sunset, Kern Co.	30-32-24	2,440	sd. sh. drlg.
Evans, H. B., No. 19 Midway-Sunset, Kern Co.	35-32-23	2,170	pump. 320 b.d.
Hallmark Oil, No. 7 Midway-Sunset, Kern Co.	25-12-24	1,943	sd. sh. drlg.
Standard Oil, No. 37-23-D Midway-Sunset, Kern Co.	23-32-24	1,961	sd. sh. drlg.
Standard Oil, No. 78-33-D Midway-Sunset, Kern Co.	33-32-24	3,090	pump. 440 b.d.
Texas Co., No. 1 Pioneer, Midway-Sunset, Kern Co.	33-11-23	1,952	sd. sh. drlg.
Texas Co., No. 24 Midway-Sunset, Kern Co.	32-32-24	3,155	O.S. drlg.
U. S. Pumping Equip., No. 2 Midway-Sunset, Kern	12-11-24	164	idle
Transco Drlg., No. 4 Grimm, Midway-Sunset, Kern	25-32-23	2,561	br. sh. drlg.
Richfield Oil, No. 1-A Buena, Elk Hills, Kern Co.	7-31-25	3,700	sd. sh. drlg.
Reserve Oil & Gas, No. 33-4 Tejon, Kern Co.	33-11-19	4,607	swab. water
Ohio Oil, No. 2 Tejon, Kern Co.	21-11-19	9,654	dry; abd.
Seaboard Oil, No. 1 Firebaugh, Madera Co.	27-12-25	4,250	sd. sh. drlg.
K. N. D. A., No. 4-18-J Kettleman North, Fresno Co.	18-21-17	11,030	gr. sd. drlg.
K. N. D. A., No. 47-28-J Kettleman North, Fresno Co.	28-21-17	8,000	gr. sd. drlg.

KEY TO ABBREVIATIONS USED IN DRILLING REPORTS

Abd., abandoned.
Bldg., building.
B.D., barrels daily.
B.P., back pressure.
B.R., building rig.
Br. sh., brown shale.
B.S., basic sediment.
C.P., casing pressure.
Cd. or Crd., cored.
C.D., corrected depth.
Cg., coring.
C.L., center line.
Cmtd., cemented.
C.O., cleaning out.
Comp., completed.
Compr., compressor.
C.P., casing pressure, also cement through perforations.
Csg., casing.
D.D., drilling (or drilled) deeper.
Drlg. or Drg., drilling.
Drk. or Dk., derrick.
D.S., drill stem.
D.&A., dry and abandoned.
Fsg., fishing.
Gbo., gumbo.
G.I., gas injection.
Gr., gravity.
Gr. sd., gray sand.
Grn. sh., green shale.
Hd. sd., hard sand.
H.F.W., hole full of water.
I.P., initial production.
L., lime.
L.D.D., later drilled deeper.
Lnr., liner.
Loc., location.
M.I.M., moving in material.
M.I.R., moving in rig.
M.I.R.T., moving in rotary tools.
M.O.T., milling on tools.
O.I.H., oil in hole.
O.S., oil sand.
O.T.D., old total depth.
O.W.D.D., old well drilling deeper.
O.W.P.B., old well plugging back.
P.B., plugging or plugged back.
P.B.P., plugging big pipe.
P.L., pipe line.
P.L.O., pipe line oil.
Pmpg., pumping.
P.O.P., putting on pump.
P.P., pulled pipe.
Rd. sd., red sand.
Rd. sh., red shale.
Recmt., recemented.
Rmg., reaming.
Redrlg., redrilling.
Rng., running.
R.O.G., rig on ground.
R.P., rock pressure.
R.U., rigging up.
R.U.R., rigging up rotary.
R.U.R.T., rigging up rotary tools.
R.U.S.T., rigging up standard tools.
R.&T., rods and tubing.
S. or Sd., sand.
S.D., shut down.
Sdy. sh., sandy shale.
Sdtr., or St., sidetracking.
S.D.P.L., shut down for pipe line.
S.D.W.O., shut down awaiting orders.
S.G., show gas.
Sh.&L., shale and lime.
S.I., shut in.
S.I.P., shut in, prorated.
S.L.M., steel line measurement.
S.O., show oil.
S.O.G.&W., show of oil, gas and water.
Spdg. or Spd., spudding.
S.R., straightreaming.
Stdg., standardizing (also standing).
S.W., salt water.
Swbg., swabbing.
T.A., temporarily abandoned.
Tbg., tubing.
T.D., total depth.
T.P., tubing pressure.
Tr., tract.
U.R., underreaming.
W.I.H., water in hole.
W.O., workover.
W.O.C. or W.O.C.S., waiting on cement to set.
W.P., working pressure.
W.S.O., water shutoff.
W.S.S.O.K., water shutoff O.K.
W.S.O.N.G., water shut off no good.
W.S.R. or W.O.S.R., wait on standard rig.
Wtr., water.

K. N. D. A., No. 41-4-P Kettleman North, Fresno Co.	4-22-17	7,430	gr. sd. drlg.
K. N. D. A., No. 83-4-P Kettleman North, Fresno Co.	4-22-17	6,751	br. sh. drlg.
K. N. D. A., No. 27-12-P Kettleman North, Kings Co.	12-22-17	4,191	sd. sh. drlg.
K. N. D. A., No. 6-6-Q Kettleman North, Kings Co.	6-22-18	6,274	sd. sh. drlg.
K. N. D. A., No. 27-6-Q Kettleman North, Kings Co.	6-22-18	4,987	sd. sh. drlg.
Standard Oil, No. 27-33-J Kettleman North, Fresno	33-21-17	6,576	br. sh. drlg.
Standard Oil, No. 4-3-P Kettleman North, Kings Co.	3-22-17	8,020	completing
Standard Oil, No. 2-11-P Kettleman North, Kings Co.	11-22-17	4,000	sd. sh. drlg.
Standard Oil, No. 78-3-P Kettleman North, Kings Co.	3-22-17	8,390	flow. 370 b.d.
Temblor Oil, No. 1-B Kettleman Middle, Kings Co.	25-23-18	8,050	gr. sh. drlg.
Dudley Ridge Dev., No. 1 Tulare Lake, Kings Co.	24-23-20	3,862	bl. sh. drlg.
Temblor Oil, No. 1 Panorama, San Luis Obispo Co.	22-32-21	3,045	idle
Burkholder Oil, No. 1 Panorama, San Luis Obispo Co.	14-10-26	4,035	rig burned
Hancock Oil, No. 1 Huasna, San Luis Obispo Co.	30-12-33	1,395	sd. sh. drlg.
Lewis, A. O., No. 1 Pecho, Huasna, San Luis Obispo	34-30-10	2,772	flow. water
Elba Oil, No. 1 Pajaro, Monterey Co.	6-13-2	3,920	gr. sd. drlg.
Anderson, Amil, No. 1 Cholame, Monterey Co.	15-24-14	2,115	br. sh. drlg.
Texas Co., No. 2 Eureka, Humboldt Co.	22- 3-1	6,473	P.B. 5,480
Standard Oil, No. 1 Delano, Tulare Co.	36-24-23	7,715	sd. sh. drlg.
Magnet O. & G., No. 1 Delano, Tulare Co.	29-24-24	2,396	sd. sh. drlg.
Tulare Dome Oil, No. 1 Allensworth, Tulare Co.	17-21-23	3,125	will redrl.
Jennings, E. P., No. 2 Allensworth, Tulare Co.	33-23-23	2,560	gr. sh. drlg.
Petaluma Expl., No. 1 Petaluma, Sonoma Co.	33- 5-6	1,889	dry; abd.
Standard Oil, No. 1 Hooper, Woodland, Yolo Co.	32- 9-1	3,876	fish. D.P.
Standard Oil, No. 1 Cook, Dunnigan, Yolo Co.	32-12-1	2,193	sd. sh. drlg.
Empire O. & G., No. 1 Woodland, Yolo Co.	8- 9-3	231	sd. sh. drlg.
Wilshire Oil, No. 1 Half Moon Bay, San Mateo Co.	20- 6-5	976	sd. sh. drlg.

IMPORTANT WELLS AND SOUTHERN CALIFORNIA WILDCATS

Company, well and location—	S.T.R.	Depth	Status
Richfield Oil, No. 1 Howard, Los Angeles Co.	7- 3-14	4,893	sd. sh. drlg.
Richfield Oil, No. 1-SF El Segundo, Los Angeles Co.	18- 3-14	7,690	P.B. 7,650
Richfield Oil, No. 2 Elsie, El Segundo, Los Angeles	12- 3-15	6,949	Schist
Union Oil, No. 3 El Segundo, Los Angeles Co.	18- 3-14	7,290	sd. sh. drlg.
Sunshine Oil, No. 1 El Segundo, Los Angeles Co.	12- 3-15	6,581	sd. sh. drlg.
Tide Water A. O., No. 1 El Segundo, Los Angeles Co.	8- 3-14	3,594	sd. sh. drlg.
Ohio Oil, No. 6 Gough, El Segundo, Los Angeles Co.	7- 3-14	7,413	reaming
Ohio Oil, No. 7 Gough, El Segundo, Los Angeles Co.	7- 3-14	6,581	sd. sh. drlg.
Texas Co., No. 3 Security, El Segundo, Los Angeles	18- 3-14	7,162	recmtd. 7,048
Texas Co., No. 4 Security, El Segundo, Los Angeles	18- 3-14	7,233	Schist drlg.
Royalty Service, No. 2 El Segundo, Los Angeles Co.	7- 3-14	7,368	sd. sh. drlg.
Standard Oil, No. 2 Refinery, El Segundo, L. Angeles	13- 3-15	6,480	sd. sh. drlg.
Standard Oil, No. 3 Refinery, El Segundo, L. Angeles	13- 3-15	6,478	sd. sh. drlg.
Pac. Western Oil, No. 1 El Segundo, Los Angeles Co.	7- 3-14	6,870	sd. sh. drlg.
Getty Oil, No. 1 El Segundo, Los Angeles Co.	7- 3-14	7,102	blowout
Republic Pet., No. 2 El Segundo, Los Angeles Co.	18- 3-14	7,587	pump. water
Douglas Oil, No. 9 Peck, Lawndale, Los Angeles Co.	20- 3-14	7,340	P.B. 7,270
Young & Bryan, No. 1 Peck, Lawndale, Los Angeles	20- 3-14	7,247	flw. salt water
I. V. Oil, No. 1 Torrance, Los Angeles Co.	16- 4-14	4,250	pump. 20 b.d.
Keystone Oil, No. 2 Torrance, Los Angeles Co.	8- 4-14	2,872	sd. sh. drlg.
B. C. L. Oil, No. 1 Torrance, Los Angeles Co.	5- 4-14	3,260	cmtd. 3,162
C. C. M. Oil, No. 34-T Torrance, Los Angeles Co.	16- 4-14	4,550	br. sh. drlg.
Loma Verde Oil, No. 12 Torrance, Los Angeles Co.	16- 4-14	4,981	will P.B.
Shell Oil, No. 92 Reyes, Dominguez, Los Angeles Co.	33- 3-13	3,148	sd. sh. drlg.
Shell Oil, No. 49 Reyes, Dominguez, Los Angeles Co.	33- 3-13	5,123	deepening
Tide Water A. O., No. 14 Dominguez, Los Angeles Co.	34- 3-13	4,367	rig. to pump
Union Oil, No. 54 Callender, Dominguez, Los Angeles	33- 3-13	7,697	sd. sh. drlg.
Union Oil, No. 56 Callender, Dominguez, Los Angeles	33- 3-13	6,970	sd. sh. drlg.
Union Oil, No. 47 Heilman, Dominguez, Los Angeles	33- 3-13	6,535	sd. sh. drlg.
Barnsdall Oil, No. 16 O'Dea, Rosecrans, Los Angeles	18- 3-13	7,540	tested wet
Barnsdall Oil, No. 17 O'Dea, Rosecrans, Los Angeles	18- 3-13	7,087	reaming
Union Oil, No. 17 Rosecrans, Los Angeles Co.	18- 3-13	1,996	sd. sh. drlg.
Macrate, A. N., No. 2 Rosecrans, Los Angeles Co.	17- 3-13	7,747	will redrl.
Bolsa Chica Oil, No. 1 Rosecrans, Los Angeles Co.	20- 3-13	7,944	P.B. 7,270
Union Oil, No. 19 D.R., Playa Del Rey, Los Angeles	27- 2-15	6,210	sd. sh. drlg.
Sharby Oil, No. 1 Playa Del Rey, Los Angeles Co.	22- 2-15	7,271	br. sh. drlg.
Metropolitan Oil, No. 1 Playa Del Rey, Los Angeles	34- 2-15	6,543	dry; abd.
Burt, A. G., No. 1 Newhall, Los Angeles Co.	36- 4-17	2,050	sd. sh. drlg.
Barnsdall Oil, No. 2-S.F., Newhall, Los Angeles Co.	26- 4-17	5,084	fish. D.P.
Holbrook Pet., No. 1 Newhall, Los Angeles Co.	28- 4-16	6,250	hd. sd. drlg.
General Pet., No. 12 Ford, Wilmington, Los Angeles	4- 5-13	2,196	sd. sh. drlg.
General Pet., No. 17 Ford, Wilmington, Los Angeles	4- 5-13	3,984	sd. sh. drlg.
General Pet., No. 20 Ford, Wilmington, Los Angeles	4- 5-13	4,100	sd. sh. drlg.
General Pet., No. 23 Ford, Wilmington, Los Angeles	4- 5-13	3,000	sd. sh. drlg.
Bankline Oil, No. 15-P.T., Wilmington, Los Angeles	34- 4-13	3,058	sd. sh. drlg.
Bankline Oil, No. 22-D.H., Wilmington, Los Angeles	34- 4-13	3,081	sd. sh. drlg.
Bankline Oil, No. 7-3-W, Wilmington, Los Angeles	34- 4-13	3,420	flow. 270 b.d.
Bankline Oil, No. 3-C.Y., Wilmington, Los Angeles	34- 4-13	2,392	sd. sh. drlg.
Black Gold Oil, No. 4-B Wilmington, Los Angeles	32- 4-13	2,960	sd. sh. drlg.
Crude Oil Drlg., No. 1-W.P., Wilmington, Los Angeles	33- 4-13	1,157	sd. sh. drlg.
Dunlap, D. D., No. 3 Wilmington, Los Angeles Co.	33- 4-13	2,575	flow. 340 b.d.
Exeter Oil, No. 1 Banning, Wilmington, Los Angeles	32- 4-13	2,836	sd. sh. drlg.
McDonald & Burns, No. 1 Wilmington, Los Angeles	32- 4-13	3,140	sd. sh. drlg.
O'Dell & Dunlap, No. 1 Wilmington, Los Angeles Co.	33- 4-13	2,483	sd. sh. drlg.
Pac. Western, No. 1 Norris, Wilmington, Los Angeles	33- 4-13	2,918	flow. 435 b.d.
Pac. Western, No. 1 Weidt, Wilmington, Los Angeles	33- 4-13	2,681	sd. sh. drlg.
Packard Pet., No. 1481-1 Wilmington, Los Angeles	33- 4-13	3,602	flow. 371 b.d.
Ring Oil, No. 5 Wilmington, Los Angeles Co.	33- 4-13	2,276	sd. sh. drlg.
Royalty Serv., No. 4-A-S.F., Wilmington, Los Angeles	33- 4-13	3,225	sd. sh. drlg.
Royalty Serv., No. 16-7-2 Wilmington, Los Angeles	32- 4-13	3,120	sd. sh. drlg.
Royalty Serv., No. 1-P.E., Wilmington, Los Angeles	33- 4-13	3,568	sd. sh. drlg.
Royalty Serv., No. 2-P.E., Wilmington, Los Angeles	32- 4-13	3,624	flow. 305 b.d.
Royalty Serv., No. 842-2 Wilmington, Los Angeles	33- 4-13	5,380	flow. 285 b.d.
Royalty Serv., No. 4-B Wilmington, Los Angeles	33- 4-13	3,499	flow. 390 b.d.
Selegna Drlg., No. 8 Wilmington, Los Angeles Co.	32- 4-13	3,605	flow. 330 b.d.
Texas Co., No. 1 Refinery, Wilmington, Los Angeles	34- 4-13	3,500	reaming
Union Pacific, No. 4 Wilmington, Los Angeles Co.	4- 5-13	3,522	flow. 360 b.d.
Union Pacific, No. 20 Wilmington, Los Angeles Co.	3- 5-13	4,090	flow. 520 b.d.
Union Pacific, No. 22 Wilmington, Los Angeles Co.	34- 4-13	2,189	sd. sh. drlg.
Union Pacific, No. 37 Wilmington, Los Angeles Co.	33- 4-13	2,927	sd. sh. drlg.
Union Pacific, No. 41 Wilmington, Los Angeles Co.	34- 4-13	2,782	sd. sh. drlg.
Union Pacific, No. 42 Wilmington, Los Angeles Co.	33- 4-13	3,614	flow. 550 b.d.
Union Pacific, No. 58 Wilmington, Los Angeles Co.	4- 5-13	2,936	sd. sh. drlg.
Union Pacific, No. 4-C Wilmington, Los Angeles Co.	33- 4-13	2,153	sd. sh. drlg.
Wilbur, V.R.G., No. 1-S.F., Wilmington, Los Angeles	33- 4-13	3,674	flow. 117 b.d.
Wilton Oil, No. 1 Wilmington, Los Angeles Co.	5- 5-13	3,701	pump. 220 b.d.
Camroo Oil, No. 1 Sterns, Pomona, Los Angeles Co.	33- 1-9	1,121	sd. sh. drlg.
Julian, C. A., No. 1 Koch, Walnut, Los Angeles Co.	5- 2-9	2,474	sd. sh. drlg.
Richfield Oil, No. 2 Ciocca, Montebello, Los Angeles	5- 2-11	5,966	pump. 25 b.d.
Texas Co., No. 17 Baldwin, Montebello, Los Angeles	6- 2-11	6,680	flow. 200 b.d.
Hilldon Oil, No. 2 Bixby, Los Angeles Co.	13- 4-13	4,085	O.S. drlg.
Texas Co., No. 3 Flower, Long Beach, Los Angeles	19- 4-12	4,843	bailing
Richfield Oil, No. 10 Denni, Long Beach, Los Angeles	19- 4-12	4,976	cleaning out
Clayton, G. L., No. 1 North Long Beach, Los Angeles	32- 3-12	5,540	idle
Union Oil, No. 100 Santa Fe Springs, Los Angeles Co.	6- 3-11	10,789	redrlg. 9,961
Texas Co., No. 7-W Santa Fe Springs, Los Angeles	6- 3-11	6,330	recmtd. 6,297
Continental Oil, No. 40 Bixby, Seal Beach, Orange	2- 5-12	4,608	sd. sh. drlg.
Wilshire Oil, No. 1-A Huntington, Orange Co.	10- 6-11	4,930	sd. sh. drlg.
Wilshire Oil, No. 6-B Huntington, Orange Co.	10- 6-11	5,150	sd. sh. drlg.
Standard Oil, No. 15 Thomson, Huntington, Orange	12- 6-11	1,997	sd. sh. drlg.
Johnston Drlg., No. 1 Sunset Beach, Orange Co.	20- 5-11	5,173	sd. sh. drlg.
Shell Oil, No. 4-1 Columbia, Olinda, Orange Co.	9- 3-9	5,930	P.B. 5,093
Brea Canyon Oil, No. 36 Brea Canyon, Orange Co.	2- 3-10	4,000	redrlg. 2,901
Bartholomae Oil, No. 5 East Coyote, Orange Co.	22- 3-10	4,030	hd. sd. drlg.
Dolicia Oil, No. 3 A.U.W., East Coyote, Orange Co.	24- 3-10	4,089	P.B. 3,615
Tide Water A. O., No. 42 East Coyote, Orange Co.	22- 3-10	3,650	sd. sh. drlg.
Standard Oil, No. 2-16 Kraemer, Richfield, Orange Co.	29- 3-9	4,850	P.B. 4,740
Bachman Pet., No. 1 Yorba, Orange Co.	21- 3-9	1,936	pump. 180 b.d.
Beverly Hills Pet., No. 1 Fricke, Yorba, Orange Co.	21- 3-9	1,529	sd. sh. drlg.
Fairfield, F. E., No. 1 Yorba, Orange Co.	22- 3-9	1,418	sd. sh. drlg.
West American Oil, No. 1 Tustin, Orange Co.	14- 5-9	6,070	redrlg. 5,181
Shell Oil, No. 1-H Anaheim, Orange Co.	9- 4-10	5,582	sd. sh. drlg.

KANSAS

Week Ending September 11 (Descriptions are East unless marked otherwise)

Barber County

Helmerich & Payne et al No. 1 Blunk Est., C SE sec. 18-34-13w. Drlg. 2,410 ft.
Olson Oil Co. and Skelly Oil Co. No. 1 Elsea, SW SE NW sec. 27-32-14w. Drlg. 4,155 ft.
W. I. Southern, Inc., No. 1 Davis, SE SE NE sec. 24-34-15w. Set 7-in. liner 4,788 ft.; W.O.C.

Barton County

Armer & Vernon Oil & Gas Co. No. 1 Persons, SW SW SE sec. 7-17-13w. Set 8-in. 2,255 ft.; C.O.
Brouk and National Ref. Co. No. 1 Gory, NW SW sec. 10-17-13w. U.R. 13-in. 535 ft.
J. B. Hanna No. 1 Luce, SW cor. sec. 21-20-13w. T.D. 3,578 ft.; D.&A.
Helmerich & Payne et al No. 1 Sessler, SW SW SE sec. 29-20-1w. S.W. 3,423 ft., T.D.; P.B. 3,416 ft.; acd.; D.&A.
C. L. Price No. 1 Hammeke, NE NE SW sec. 12-18-12w. Sil. 3,415-27 ft.; 1,800 B. O. and 3½ B.W. every other day.
Shell Pet. Corp. No. 1 Peterman, SE NE SE sec. 13-16-14w. Drlg. 1,830 ft.
Vickers Pet. Co. No. 1 Lucas, NW NW NE sec. 16-17-14w. C.O. 2,905 ft.
Ralph Wixson et al No. 1 Buhrle, SE SE NE sec. 14-16-13w. Drlg. 2,620 ft.

Butler County

Rex & Morris et al No. 1 Stephens, SW SW SE sec. 35-23-3e. Drlg. 1,590 ft.

Chase County

California-Illinois-Kansas Oil Co. No. 1 Hughes, SW NW SE sec. 13-22-9e. Set 5-in. 2,599 ft.; P. 17 B.O. and 200 B.W.; D.&A.

Chautauqua County

C. L. Brosius et al No. 1 Garrett, NW SW NW sec. 26-32-11. T.D. 1,940 ft.; P.B. 1,545 ft.
W. G. Buffington No. 1 Fisher, CWL SW NW sec. 10-34-9e. Drlg. 700 ft.
C. R. Craft No. 1 Lagree, SE NW NE sec. 8-32-12e. T.D. 2,080 ft.; P.B. 687 ft.
Harrison No. 1 Brown, NE SE NE sec. 19-34-10. Drlg. 390 ft.
Robinson et al, No. 1 Foster, SW cor. sec. 6-33-12. Sil. 1,981 ft. (cor.); T.D. 1,986 ft.; P. 120 B.O. and 10 B.W. in 20 days.
S. H. Vineard No. 1 Hughes, NE NE SE sec. 13-32-12. T.D. 426 ft.; skd. rig. 25 ft. north.

Cowley County

Pryor & Lockhart No. 1 Brown, NE SE SE sec. 34-33-3e. Drlg. 610 ft.
E. B. Shawver No. 1 fee, NW NE SE sec. 3-30-4e. T.D. 2,828 ft.; est. 25 B.O.P.D.

Edwards County

Douglas & Gear et al No. 1 Meade, SE SE NW sec. 33-25-16w. Drlg. 4,380 ft.

Elk County

Coronado Oil Co. No. 1 Atkinson, SW NE SW sec. 22-29-10e. Drlg. 1,400 ft.

Ellis County

Aylward Prod. Co. et al No. 1 Berens, SE SE sec. 10-14-16w. Spd.
Billings No. 1 Smith, SE SE NW sec. 14-12-16w. Sil. 3,356 ft.; T.D. 3,385 ft.; acd.
Brunson Drlg. Co. et al No. 1 Weisner, SE SW SE sec. 31-13-17w. Set 8-in. 2,815 ft.; C.O.
Buffalo Oil Co. No. 1 Phillip, NE NE sec. 18-14-16w. Cd. 3,435-46 ft.; sat.
Colonial Oil Co. and Bernheimer No. 1 Albert, SW SW NE sec. 31-12-18w. Fsg. 1,260 ft.
Lario O. & R. Co. No. 1 Bell, NW NW NE sec. 8-12-18w. Drlg. 1,405 ft.
L. M. Reynolds No. 1 Polcyn, SE SE NE sec. 24-13-16w. Fsg. 2,310 ft.
P. G. Reynolds et al No. 1 Karlin, NW cor. sec. 13-12-18w. C.O. 1,845 ft.
C. E. W. Skiles et al No. 1 Jensen, SW SE NE sec. 26-12-18w. C.O. 2,643 ft.
Earl Wakefield et al No. 1 Burnett, NW NW NE sec. 1-11-18w. Fsg. 3,199 ft.
Western Kansas O. & R. Co. and Aylward Prod. Co. No. 1 Schmeidler, NW cor. sec. 22-12-17w. H.F.W. 3,692-3,700 ft.; D.&A.

Ellsworth County

Equity Gas Co. No. 1 Razac, NE NE SE sec. 31-15-10w. U.R. 7-in. 3,002 ft.

Grant County

United Prod. Co. No. 1 Blake, C SW sec. 21-30-36w. C.O. 2,947 ft.

Greenwood County

Ward McGinnis et al No. 1 Henly Estate, SW cor. sec. 25-25-9. T.D. 2,234 ft.; H. F.W.; P.B.; cmt. 6-in.
Ward McGinnis et al No. 1 Smith & Jobes, NW NW SE sec. 10-24-13e. Set 6-in. 1,613 ft.; T.D. 1,633 ft.; W.O.C.
S. Van Devanter et al No. 1 Dove, NE SE SW sec. 12-28-11. Drlg. 615 ft.

Kearny County

J. L. Murphy No. 1 Masonic Home, C NW sec. 1-26-36w. Set 8-in. 1,465 ft.; C.O.

Kingman County

Carter Oil Co. No. 1 Davis, C E½ NE NE sec. 24-28-8w. Drlg. 2,830 ft.

Logan County

Morgan, Flynn, Cobb et al No. 1 McMullen, C NW sec. 9-13-37w. S.D. 3,489 ft. for repairs.

Lyon County

Arthur Sory No. 1 Byrd, SW SW SE sec. 32-21-11. T.D. 1,914 ft.; 450 ft. O.I.H. and S.S.W.

Marion County

Hutchinson O. & G. Co. et al No. 1 Ehrmann, SE SE SW sec. 15-18-1e. Set 6-in. 3,211 ft.; C.O.
Western Kansas O. & R. Co. et al No. 1 Suderman, SE SW NW sec. 22-20-2e. Viola 2,947 ft.; fsg.

McPherson County

C. E. Ash Drlg. Co. No. 1 Broman, NE NE NW sec. 19-17-4w. Drlg. 2,290 ft.
Bradley Bros. No. 1 Barnhart, SW SW SE sec. 30-20-5w. Chat 3,292 ft.; T.D. 3,335 ft.; P. 115 B.O. in 14 hrs.; down 5 hrs.
Fred C. Frank et al No. [illegible] NE NW NE sec. 12-19-1w. Set 8-in. 2,775 ft.; S.D.
Wamhoff et al No. 1 Nuse, SE NE SW sec. 18-18-4w. S.D. 1,850 ft.

Meade County

Pacific Mid-West Co. No. 1 Rexford, NE SE SW sec. 8-30-29w. Drlg. 200 ft.

Mitchell County

Geo. Siedhoff et al No. 1 Greiss, SW SW SE sec. 16-8-10w. S.D. 4,022 ft.

Ness County

Jones & Lane No. 1 Page Milling Co., SE SE NW sec. 36-18-26w. Drlg. 1,530 ft.
Newton Dev. Co. No. 1 Tenny, NW NW SE sec. 19-18-25w. Inc. oil 4,400-02 ft.; 3,500 ft. O.I.H. at 4,406 ft.; S.D.

Osborne County

Fred C. Chaddox and Atlantic Ref. Co No. 1 Slater, NE SW NE sec. 33-10-15w. Drlg. 2,390 ft.
F. E. Fullerton & Son No. 1 Moray, NE SE SW sec. 27-10-12w. Set 13-in. at 50 ft.; W.O.C.

Pratt County

Atlantic Ref. Co. et al No. 1 Runyon, SW NW NE sec. 11-27-13w. Drlg. 4,410 ft.
Skelly Oil Co. et al No. 1 Adams, SE NW NE sec. 2-28-11w. S.D. 3,821 ft.

Reno County

Carey et al o. 1 McPheeters, NE NE NW sec. 22-26-8w. Spd. and S.D.
Sam Schneider et al No. 1 Kroecker, NE cor. sec. 12-22-5w. S.D. 1,565 ft.

Rice County

Bell O. & G. Co. et al No. 1 Wilkins, NW NW NE sec. 23-21-9w. Simp. 3,591 ft.; Sil. 3,643 ft.; T.D. 3,662 ft.
Boyle & Grossman No. 1 Diener, SE NE sec. 35-19-1w. Drlg. 45 ft.
Bridgeport Mch. Co. et al No. 1 Habiger, NW cor. sec. 5-18-10w. T.D. 3,016 ft.; pot. 4,027 bbls.; comp.
Gerbrand-Puise Oil & Drilling Co. No. 1 Wellman, SW cor. sec. 22-21-9w. Drlg. 2,230 ft.
Gillespie et al No. 1 Strong, NE NW sec. 9-18-8w. Spd. and S.D.
John Hanna et al No. 1 Marshall, NE NW NW sec. 30-18s-8w. S.D. 1,515 ft.
H. V. Holland et al No. 1 Brothers, SE cor. sec. 12-21-7w. T.D. 3,469 ft.; P. 126 B.O. in 6 hrs.
Skiles et al No. 1 Campbell, SE SE NE sec. 28-19-9w. Drlg. 2,175 ft.
W. E. Witt et al No. 1 Fair, NW SE SE sec. 4-22-8w. Fsg. 4,245 ft.

Rooks County

C. R. Craft et al No. 1 Ziegler, NE SW sec. 8-10-16w. C.O. 2,860 ft.
Graham et al No. 1 Fike, SW cor. sec. 9-9-17w. T.D. 3,326 ft.; p. 39 B.O. and 48 B.W. in 8 hrs.; C.O.
J. H. Lester No. 1 Methene, SE SE NE sec. 29-10-20w. C.O. 3,875 ft.

Rush County

Duwe & Brouk No. 1 Lebsack, SE SE NE sec. 13-16-16w. Sil. 3,492-95 ft.; 1,500 ft. sulfur water in hole in 2½ hrs.; T.D. 3,512 ft.; S.D.O.
Earl Wakefield et al No. 1 Zimmerman,

SE SE SW sec. 7-16-18w. Drlg. 2,725 ft.
Westgate-Greenland Oil Co. No. 1 Hagerman, NE cor. sec. 20-19-16w. T.D. 4,030 ft.; D.&A.

Russell County

Boyle & Grossman No. 1 Deines, SE SE SW sec. 36-15-15w. Sil. 3,451 ft.; H.F. W. 3,471-76 ft.; T.D. 3,179 ft.
Cities Service Oil Co. et al No. 1 Eichman, SW SE sec. 12-15-14w. Drlg. 1,285 ft.
Cities Service Oil Co. and Texas Co. No. 1 Boxberger B, NE cor. sec. 23-13-15w. Drlg. 1,990 ft.
Emrichs et al No. 1 Anderson, NE SE SW sec. 33-15-11w. Spd. and S.D.
Shell Pet. Corp. No. 1 Batt, SE cor. sec. 35-15-14w. T.D. 3,320 ft.; acd.; pot. 1,276 B.O.; comp.
Winkler & Koch No. 1 Jones, SE SE NW sec. 22-14-13w. Sil. 3,180 ft.; S.D.O.

Sedgwick County

Fulton et al No. 1 fee, NE SE sec. 35-28-1e. S.G. 795 ft. C.O.
Home Stake Royalty Co. No. 1 McCormick, SW SW NW sec. 23-25-3w. T.D. 4,150 ft.; D.&A.
I. W. Murfin et al No. 1 Martin, SE NW sec. 32-28-1e. U.R. 12-in. 1,115 ft.
National Ref. Co. No. 1 fee, SE NE SE sec. 26-27-2e. Drlg. 566 ft.
Palmer Oil Corp. No. 1 Royal, NE cor. sec. 15-28-1w. T.D. 3,899 ft.; S.D.O.
W. G. Talbott et al No. 1 Downs Est., SE SE NW sec. 32-28-2e. T.D. 2,229 ft.; 7,500,000 ft. gas.
Union O. & R. Co. et al No. 1 Howell, SW cor. sec. 6-29-1e. U.R. 12-in. 1,202 ft.

Stafford County

W. P. Faulkner No. 1 Moses, NW SW sec. 9-22-13w. Drlg. 715 ft.
Kessler et al No. 1 Jenkins, SE NE sec. 15-25-12w. Drlg. 2,000 ft.
Newman & Winemiller No. 1 Sittner, NE cor. sec. 33-21-12w. Set 7-in. 3,360 ft.; acd.; pot. 1,408 B.O.
E. J. Shaffer No. 1 Spencer, NW SW sec. 3-25-14w. Drlg. 3,795 ft.
Stanolind O. & G. Co. et al No. 1 Hartnett, NW NW NE sec. 23-24-11w. T.D. 3,807 ft.; F. 212 B.O. in 4 hrs.

Sumner County

Cities Service Oil Co. No. 1 McCoy, SE SW sec. 11-35-2e. Spd.
W. M. McKnab No. 1 Blair, SW cor. sec. 7-30-1e. Chat 3,340 ft.
R. J. Wixson No. 1 Newton, SE SE sec. 21-30-2e. Drlg. 1,770 ft.

Trego County

Central Commercial Oil Co. No. 1 Locker, C SW sec. 12-14-22w. Set 12-in. 122 ft.; W.O.C.
Phillips Pet. Co. No. 1 Trego, C SE SW sec. 14-12-23w. Cmtg. cave 3,826 ft.
F. L. Thorn et al No. 1 Koeppen, SE SE SW sec. 31-14-24w. Fsg. 4,355 ft.

Woodson County

Becker Bros. et al No. 1 Vann, NW SW SE sec. 22-25-14. Rng. 6-in. at 1,100 ft.
Fred Rapp No. 1 Houghland, NW NW SE sec. 2-25-15. Drlg. 1,520 ft.
Seibel No. 1 Kerschner, CNL NE NE sec. 3-26-15. Drlg. 1,489 ft.
Steinle No. 1 Kash, SE SE sec. 4-26-15. Drlg. 1,570 ft.

OKLAHOMA

Week Ending September 11

NORTHERN OKLAHOMA

Beckham County

Mid-American Oil Co. No. 1-A Biscoe, SW cor. sec. 28-8-22w. T.D. 2,214 ft.; S.O.; U.R. 6⅝-in. csg. at 2,080 ft.

Caddo County

Clyde Becker et al No. 1 Pharris, SE SE NW sec. 24-6-12w. T.D. 6,235 ft.; S.D.O.
Indian Terr. Illum. Oil Co. No. 1 Dome-Bo, C NE SE sec. 29-6-10w. Drlg. 3,263 ft.

Cleveland County

W. R. Hollenbeck No. 1 Norman, NW NW NE sec. 17-9-2w. T.D. 7,178 ft.; P.B. and drlg. by at 6,905 ft.
Hollenbeck et al No. 1 Ward, SW SE NE sec. 30-7-1e. Drlg. 6,950 ft.

Creek County

L. B. Jackson No. 1 Alberty, NE NE NW sec. 25-19-9. T.D. 2,975 ft.; F. 900 B.O. in several tests in two days.
M. W. Mosier et al No. 1 Holcomb, SE SW NW sec. 19-18-8. Burgess 3,005 ft.; T.D. 3,009 ft.; drlg. plug.

Garvin County

Carter Oil Co. No. 1 Potts, C E½ SE NW sec. 36-1n-3w. Drlg. 2,343 ft.
B. C. D. Edwards No. 1 Clark, NE cor. sec. 16-3n-3e. T.D. 1,491 ft.; S.D. for drill pipe.

Grady County

Gulf Oil Corp. No. 1 Thomas, SW NW NW sec. 14-4-5w. Drlg. 7,215 ft.

Grant County

Carter Oil Co. et al No. 1 Crisman, C W½ SW NW sec. 16-25-3w. T.D. 5,408 ft.; to run tbg.

Haskell County

Continental Oil Co. No. 1 Ferguson, SW SE NE sec. 33-8-20. Woodford 6,470 ft.; drlg. 6,800 ft.

Hughes County

W. O. Allen No. 1 Barnard, SW cor. sec. 24-8-8. T.D. 4,274 ft.; P.B. 3,423 ft.; shot; 1,500,000 ft. gas; re-shot; no incr.
Burke-Greis Oil Co. No. 1 Rhea, SW SW SE sec. 14-10-9. T.D. 1,780 ft.; to skid rig.
Carter Oil Co. No. 1 Hamilton, C W½ NE SW sec. 33-4-9. T.D. 6,172 ft.; P.B. 5,989 ft.; dpnd. to 5,994 ft.; drld. plug.; pmpd. 218 B.O. net in 24 hrs., 17% S.W.
E. H. Moore, Inc., No. 1 Buck, NW SW SW sec. 21-8-10. Drlg. 3,690 ft.
Moroney & Healey No. 1 Field, C NW SW sec. 11-9-11. T.D. 3,540 ft.; H.F.W. and S.D.
Phillips Pet. Co. No. 1 Becker, NE NW SW sec. 8-5-10. Drlg. 1,700 ft.
Texas Co. No. 1 Cox, NE NW NW sec. 23-9-8. T.D. 4,397 ft.; P.B. 4,060 ft.; to test Gilcrease.

Kay County

Black Gold Oil Co. No. 2 Cooley, SW cor. sec. 25-28-4e. T.D. 1,920 ft.; U.R. 6-in. at 1,720 ft.

Kiowa County

Hughes & Reese No. 1 Fultz, SE cor. sec. 10-6-18w. T.D. 768 ft.; 200,000 ft. gas.
Kiowa Oil Corp. No. 1 Finger, C SW NE sec. 4-6-20w. T.D. 1,050 ft.; S.D.
H. L. Wirick et al No. 1 Noske, SE SE NW sec. 1-6n-17w. Drlg. 1,095 ft.

Latimer County

Clark Drlg. Co. et al No. 1 Wilson, C SE SE sec. 15-5-18. T.D. 6,515 ft. in Atoka; P.B. 3,820 ft.; perf. 2,720-2,970 ft.; to test at 2,700-ft. horizon.

Lincoln County

Continental Oil Co. et al No. 1 Community, NW NW SE sec. 7-15-5. Drlg. 1,095 ft.

Logan County

Sunray Oil Co. and Olson Drlg. Co. No. 1 Canning, SW SW NE sec. 31-17-1w. Drlg. 4,210 ft.

Noble County

Darby Pet. Corp. No. 1 McCoy, SE SE SW sec. 24-23-2w. Spudded.
Seaboard Western Oil Co. et al No. 1 Guthrie, NW NW NE sec. 6-20-2w. Drlg. 4,340 ft.

Okfuskee County

F. W. Merrick No. 1 Mackey, NE NE SW sec. 29-11-10. Drlg. 3,140 ft.
Riverland Oil Co. No. 1 Board, NE NW SE sec. 10-13-10. Set 6-in. 2,788 ft.; T.D. 2,840 ft.

Oklahoma County

Frank Buttram et al No. 1 Cole, NW cor. sec. 16-14-1e. Second Wilcox 5,851-70 ft.; T.D.; S.W.

Pittsburg County

Okla. Dist. Oil Co. No. 1 Beeler, NE NE SW sec. 7-7-14. T.D. 5,165 ft.; S.D.O.
Phillips Pet. Co. No. 1 Gilcrease, NW NW SE sec. 16-7-12. Drlg. 2,170 ft.

Pontotoc County

Boettcher O. & G. Co. No. 1 Cann, SE NW NE sec. 25-4n-7e. T.D. 4,347 ft.; fsg.
Keriyn Oil Co. No. 1 Pratt, SW SE NE sec. 6-4-4e. Wilcox 2,290-2,355 ft.; T.D.; rng. Schlumberger.
Norbia Oil Co. No. 1 McBride, NE NE SW sec. 10-2n-5e. Loc.
Papoose Oil Co. et al No. 1 Jones, NW SE NW sec. 2-4-5. Viola 2,595 ft.; T.D. 2,840 ft.; run Schlumberger; S.D.O.
Union Dev. Co. No. 1 Abbott, SW NW NE sec. 34-3-6. T.D. 3,320 ft.; drill pipe stuck.

Pottawatomie County

Mid-Continent Pet. Corp. No. 1 Ne-Thah-Pea-Se, SE SE NE sec. 24-11-4. Dol. 4,853-86 ft.; shot; flwd. 70 B.O. in 6 hrs.; S.I. for tanks.
Roy S. Nash et al No. 1 Miller, C N½ NE SE sec. 29-6-3e. T.D. 4,415 ft.; S.D. for csg.

Seminole County

E. W. Jones et al No. 1 Belford, NE SE NE sec. 9-9-8. Drlg. 4,597 ft.
Stanolind O. & G. Co. and Amerada Pet. Corp. No. 1 Salina, SE NE NW sec. 4-5-6. T.D. 3,317 ft.; P.B. 3,272 ft.; to test.

Washita County

John Koberg No. 1 Harms, NW NW NE sec. 6-10-16w. T.D. 4,260 ft.; cleaning up fsg. job. at 4,130 ft.

SOUTHERN OKLAHOMA

Atoka County

A. L. Larson No. 1 Mason, SW SE SE sec. 35-1n-14. T.D. 140 ft.; S.D.
C. M. Sheldon and Gardner Pet. Co. No. 1 Lee, NE NW SW sec. 2-4s-10e. Spd.

Coal County

Carter Oil Co. No. 1 Claytor, C W½ NE SW sec. 27-2n-9e. Drlg. 5,672 ft.
Phillips Pet. Co. No. 1 Beck, SE SW SW sec. 6-1n-9e. Drlg. 3,030 ft.

Comanche County

M. J. Andrichak No. 1 Korthouse, NW NE SW sec. 35-2n-10w. T.D. 1,095 ft.; to shoot.
Frank Scott No. 1-A Kuntz, SE NE SE sec. 21-4n-11w. T.D. 2,793 ft.; S.D.

Jackson County

Ace Gutowsky No. 1 Booker, NW cor. sec. 33-2n-18w. T.D. 887 ft.; S.D.O.
Ace Gutowsky No. 1 Howard, NE SW NW sec. 10-3n-19w. T.D. 950 ft.; S.D.
E. L. Lippert et al No. 1 Miller, NW cor. sec. 4-2n-18w. T.D. 625 ft.; fsg.

Johnston County

Patton et al No. 1 McCrummins, C SW SW NE sec. 16-1s-6e. S.D. 1,165 ft
W. T. Sheldon No. 1 Chapman, C NW NW sec. 26-4s-6e. Drlg. 1,495 ft.

Marshall County

Paul Robb et al No. 1 Vittitoe, C NE SE sec. 11-5s-4e. O.W.D.D.; C.O. to 720 ft.; S.D.

Murray County

O. O. Owens No. 1 Fryer, NE SE NE sec. 34-1s-3e. T.D. 2,574 ft.; 1,400 ft. W.I.H. S.D.
Sinclair Prairie Oil Co. No. 1 Lancaster Trust, C SW NE sec. 10-1-2e. Drlg. 3,841 ft.

Pushmataha County

Erle Halliburton et al No. 1 Bagwell, SW NE NE sec. 30-3s-15e. Drlg. 4,751 ft.

Stephens County

Carter Oil Co. No. 1 Harley, C NE NE sec. 24-2s-4w. T.D. 8,157 ft.; acd.; flwd. 1,790 B.O. in 16 hrs.; S.I.
Jack Cohen No. 1 Pierce, NE NE NW sec. 24-2s-6w. Drlg. 1,300 ft.
Coline Oil Co. No. 1 Johnson, C SW SE SE NE sec. 1-2n-8w. Drlg. 9,388 ft.
Ed Parsons No. 1 Blake, C SW NW sec. 22-2n-8w. T.D. 4,496 ft.; P. 95 B.O. in 16 hrs.; to deepen.

Tillman County

Cavens et al No. 1 Southerland, SW SW NW sec. 35-4s-16w. T.D. 44 ft.; S.D.
Gulf Oil Corp. No. 1 Prichard, SE NW SE sec. 32-3s-16w. Drlg. 3,250 ft.
Indian Territory Ill. Oil Co. No. 1 Graham, SE SE NE sec. 1-3s-19w. T.D. 3,081 ft.; est. 500 B.O. dly.
Tom Walker No. 1 Bowman, SW SW NW sec. 10-4s-17w. S.D. 200 ft.

LOUISIANA

NORTH LOUISIANA PROVEN

Caddo—Rodessa

F. W. Burford No. 1 Pitts, NW sec. 1-23-16. Drlg. 3,800 ft.
Gulf Ref. Co. No. 2 Campbell, C sec. 4-23-16. R.U.
Holcomb & Thomasson No. 1 Dillon, SE sec. 4-23-16. Comp.; flw. 5 B.P.H.; T.D. 6,030 ft.
Holcomb & Thomasson No. 1 Smith, SE sec. 4-23-16. 7-in. cmt. 5,959 ft.; T.D. 6,018 ft.
Magnolia Pet. Co. No. 1 G. W. Hardy, sec. 1-23-16. Drlg. 260 ft.
R. W. Norton No. 7 Starke, NW sec. 17-23-16. R.U.
R. W. Norton No. 8 Starke, NW sec. 17-23-16. Drlg. 4,765 ft.
R. W. Norton No. 9 Starke, NW sec. 17-23-16. Drlg. 5,490 ft.
R. W. Norton No. 10 Starke, NW sec. 17-23-16. Drlg. 2,572 ft.
R. W. Norton No. 12 Starke, NW sec. 17-23-16. Drlg. 5,810 ft.
R. W. Norton No. 14 Starke, C sec. 16-23-16. 6-in. cmt. 5,834 ft.; T.D. 5,910 ft.
Standard Oil of La. No. 1-C Parker, NE NE NW sec. 9-23-16. Drlg. 3,490 ft.
United Gas No. 5 Starke, SE sec. 8-23-16. Drlg. 5,740 ft.

N. LOUISIANA WILDCATS

Bienville Parish

H. L. Hunt and Seaboard Oil Co. No. 1 Commercial Real Estate Corp., NE NW sec. 3-16-6. Drlg. 6,562 ft.

Bossier Parish

L. W. Dennis No. 1 D. T. Roos, SW NW NW sec. 13-19-12. R.U.
Triangle Drlg. Co. No. 1-A Schuler Est., SE NW sec. 13-17-12. Drlg. 1,296 ft.

Caddo Parish

W. D. Ambrose No. 1 J. B. Files, SE NE SE sec. 10-20-15. Comp.; flw. 150 B.P.D.; T.D. 2,197 ft.
L. J. Davis No. 1 Stiles, SE sec. 17-21-16. 8-in. 1,007 ft.; W.O.S.R.
W. J. Hunter et al No. 1 Stoer, NW SW NE sec. 10-15-15. P.B. and tstg.; T.D. 5,413 ft.; S.G.; perf. 5,100-20 ft.; tstg.
La. Oil Prod. Co. No. 10-B Muslow, SW SE SW sec. 4-20-15. T.D. 2,172 ft.; 6-in. cmt.
Prairie River Synd. No. 1 Hutchinson, SW NW sec. 15-15-12. Cg. 8,830 ft.; prep. test.
Surf Maji Oil Co. No. 1 Satellete, NE SE sec. 10-20-15. Comp.; flw. 85 B.P.D.; T.D. 2,190 ft.
Surf-Maji Oil Co. No. 3 Self, SE sec. 10-20-15. R.U.

Claiborne Parish

Atlantic Ref. Co. No. 4 F. B. King, W½ SE SE sec. 35-21-5. Drlg. 4,444 ft.
Atlantic Ref. Co. No. 1-A Tatum, N½ NE SE sec. 31-21-4. T.D. 5,212 ft.; acid.
Atlantic Ref. Co. No. 1-B Tatum, W½ NW SW sec. 32-21-4. T.D. 5,275 ft.; acid.
R. L. Bauman No. 2 M. S. Patton, N½ NW NE sec. 1-20-5. T.D. 5,304 ft.; tstg.
Gulf Ref. Co. No. 1 S. E. Tatum, SW cor. sec. 32-21-4. Comp.; pump. 92 B.P.D.; T.D. 5,303 ft.
Gulf Rfg. Co. No. 2 S. E. Tatum, S½ SW SW sec. 32-21-4. Drlg. 4,098 ft.
Harry Hanbury No. 2-B R. Vaughn, N½ SW SE sec. 25-21-5. Drlg. 3,900 ft.
Harry Hanbury No. 2-C R. Vaughn, N½ SE SE sec. 25-21-5. Drlg. 890 ft.
Hollifield & McFarland No. 4 M. S. Patton, E½ SW SE sec. 31-21-4. T.D. 5,311 ft., tstg.
Hollifield & McFarland No. 1 W. H. Patton, E½ NE NE sec. 2-20-5. Drlg. 3,625 ft.
T. L. James No. 1 Baker, sec. 25-21-5. T.D. 5,222 ft.; W.O.S.R.
T. L. James No. 1 D. E. Fowler, W½ NE SW sec. 32-21-4. Drlg. 4,516 ft.
Love Bros. No. 2 J. J. Henry, N¼ NE NE sec. 31-21-4. Comp.; flw. 20 B.P.H.; T.D. 5,175 ft.
Lyons & Neely No. 2 J. Bean, E½ SE NE sec. 31-21-4. Comp.; flw. 54 B.P.H.; T.D. 5,202 ft.
Lyons & Neely No. 1 Simms, NE NE sec. 32-20-5. R.U.
Magnolia Pet. Co. No. 6 English, S½ NE NW sec. 31-21-4. 7-in. 5,205 ft.; T.D. 5,220 ft.; W.O.C.S.
Magnolia Pet. Co. No. 1 Fowler, W½ SE SW sec. 32-21-4. Drlg. 875 ft.
Magnolia Pet. Co. No. 4 H. E. Patton, S½ SE SW sec. 36-21-5. Drlg. 4,970 ft.
W. L. McClanahan No. 1 J. T. Lewis, W½ SW SE sec. 25-20-7. R.U.
Olson Drlg. Co. No. 2 J. T. Bean, N½ NW NW sec. 33-21-4. 10-in. cmt. 804 ft.
Olson Drlg. Co. No. 1-B T. F. Patton, S½ SE SW sec. 29-21-4. Comp.; flw. 175 B.P.D.; T.D. 5,149 ft.
A. O. Olson No. 2-B T. F. Patton, N½ SE SW sec. 29-21-4. R.U.
C. R. Schuster No. 3 Patton Est., N½ NE NE sec. 1-20-5. Drlg. 2,312 ft.
Scouts Oil Co. No. 1 E. C. English, S½ SW SE sec. 30-21-4. 5-in. 5,185 ft.; T.D. 5,215 ft.
Sells Pet. Co. No. 2 J. Bean, Jr., E½ SW NW sec. 32-21-4. Drlg. 5,140 ft.
Sells Pet. Co. No. 2 W. Jones, E½ SE SE sec. 31-21-4. T.D. 5,320 ft.; W.O.S.R.
Sloan & Zook Co. No. 1 Patton Est., NE NW sec. 1-20-5. Comp.; flw. 7 B.P.H.; T.D. 5,287 ft.
Sloan & Zook Co. No. 1 Patton Est., W½ NE NW sec. 1-20-5. Drlg. 4,150 ft.
Shreveport Oil Corp. No. 1 Edwards, NE sec. 16-20-5w. T.D. 5,438 ft.; W.O.S.R.
Standard Oil of La. No. 4 F. B. King, sec. 35-21-5. Drlg. 4,210 ft.
J. C. Tippett No. 2 Avcock, S½ NE SE sec. 1-20-5. Comp.; flw. 45 B.P.H.; T.D. 5,378 ft.
United Gas et al No. 1 J. W. Stevenson, SE SW SE sec. 6-19-5. Drlg. 4,460 ft.
G. H. Vaughn et al No. 1 Eppinger, SW sec. 29-21-4. R.U.
G. H. Vaughn No. 1 E. B. King, S½ SE SE sec. 30-21-4. Comp.; flw. 802 B.P.D.; T.D. 5,130 ft.

Concordia Parish

Coastal Mineral & Dev. Co. No. 1 Winsten, sec. 23-7-9e. S.D. rig rep.; drlg. 1,985 ft.
Edward A. Addy et al No. 1 Posternack, NW SW sec. 49-8n-93. S.D. 50 ft.

McGREGOR

40 YEARS

OUR 12 Different types of working barrels and pumps are the result of 40 years of practical field experience. We also make all sizes and kinds of Balls and Seats, Valves, Cups, etc.

Ask for booklet.

McGREGOR WORKING BARREL COMPANY

Bradford, Pa., U.S.A.

De Soto Parish

Clear Lake Oil Co. No. 1 J. A. Woolums, NW sec. 29-12-12. Drlg. 1,842 ft.
Paul Miller No. 1 R. A. Barron, sec. 36-11-11. T.D. 2,934 ft.; S.W. and abd.
Pullman Oil Co. No. 4 Ramsey, NE SW NW sec. 36-11-11. Drlg. 2,450 ft.

Franklin Parish

Tensas Delta Oil Corp. No. 1 Woodland, NE sec. 22-11-9. Drlg. 5,671 ft.

LaSalle Parish

Buck Granshaff et al No. 1 Russell, sec. 25-10-1e. Blew out; skidded rig; drlg. 50 ft.

Lincoln Parish

J. E. Burford, Sr., No. 1 Hanna, SE SW SE sec. 34-18-4w. Drlg. 5,970 ft.
Crown Cen. Pet. Co. No. 2 T. F. Patton, S½ SE NW sec. 6-20-4. Drlg. 5,268 ft.
Gigantic Oil Co. No. 1 R. L. Sanderson, NW SE NW sec. 30-18-1w. T.D. 50 ft.; S.D.
Hollifield & McFarland No. 1 J. D. Caruthers, S¼ NE NW sec. 6-20-6. Comp.; flw. 50 B.P.H.; T.D. 5,347 ft.
T. L. James No. 1 J. J. Spence, SW NE sec. 11-17-4. Drlg. 6,640 ft.
W. F. Lacey No. 2 T. F. Patton, E½ NW NE sec. 6-20-4. Rng. csg.; T.D. 5,351 ft.
Ludel Oil Corp. No. 1 Gill, NE NE NW sec. 36-20-2w. Drlg. 4,025 ft.
Lyons & Neely No. 1 H. E. Patton, N½ NE SW sec. 6-20-4. Drlg. 5,180 ft.
Lyons & Neely No. 2 H. W. Patton, S½ SW NW sec. 6-20-4. Drlg. 800 ft.
Magnolia Pet. Co. No. 1 F. Corbin, W½ NE NE sec. 6-20-4. Drlg. 3,725 ft.
E. H. Moore, Inc. No. 1 Arcadia Comm. Bank, C NW sec. 22-18-5. Drlg. 500 ft.
Olsen Drlg. Co. No. 1 Aycock, N½ SW SW sec. 6-20-4. T.D. 5,370 ft.; acid.

Red River Parish

Gulf Ref. Co. No. 28 L. E. Kennedy, NW sec. 25-13-11. Drlg. 3,100 ft.
Gulf Ref. Co. No. 42 E. T. Robinson, NW sec. 25-13-11. Drlg. 2,000 ft.
W. J. Hunter No. 2 Long Bell Lbr. Co., SW NW sec. 20-19-9. D.S. 3,050 ft.; show oil and S.W.
J. C. Prine No. 1 Haynes, SW sec. 20-13-10. Hole clean; cmtd. 4-in. 2,502 ft.; T.D. 5,220 ft.; W.O.C.S.
T. S. Shaw No. 5 Wilkinson, NW SE SE sec. 4-12-10. Drlg. 1,500 ft.
W. K. Williams No. 2 Padock, SE SW NW sec. 33-13-11. Drlg. 1,326 ft.

Webster Parish

V. L. Foster No. 2 J. M. Mixon, SE sec. 21-21-10. Drlg. 485 ft.
Magnolia Pet. Co. No. 4 Aarnes-Cox, NW sec. 22-21-10. Drlg. 5,600 ft.
Magnolia Pet. Co. No. 2 A. J. McCook, SW sec. 22-21-10. Comp.; flw. 517 B.P.D.; T.D. 8,293 ft.
Ohio Oil Co. No. 47 Bodcaw Acct. 2, SW SE sec. 15-21-10. Drlg. 7,404 ft.
Ohio No. 1 S. P. D. Cowle and W. Cox, SW SW SE sec. 23-21-10. Drlg. 5,660 ft.
Ohio Oil No. 1 T. Crichton, Acct. No. 2, SE NE sec. 21-21-10. Drlg. 7,614 ft.
Ohio No. 7-B R. L. Holloway, 586 ft. N. 756 ft. E line, sec. 23-21-10. Drlg. 7,321 ft.
A. G. Oliphant et al No. 1 Banks, NE NE sec. 34-21-10. Drlg. 7,024 ft.
Ohio Oil Co. No. 1 D. W. Merritt, SW cor. sec. 14-21-10. Drlg. 5,600 ft.
Standard Oil Co. of La. No. 7 Mrs. M. F. Davis, NE NE NW sec. 23-21-10. Drlg. 5,277 ft.
Standard Oil Co. of La. No. 2-B Mrs. M. E. Gray, NE NE NW sec. 26-21-10. Drlg. 5,529 ft.

SOUTH LOUISIANA FIELDS

Abbeville—Vermilion Parish

Continental Oil Co. No. 1 Brookshire, sec. 66-12s-3e. T.D. 11,342 ft.; drlg. sh. 11,613 ft.

Anse La Butte—St. Martin Parish

Crusader Pet. Co. No. 3-B Begnaud. T.D. 3,082 ft.; fsg.

Bay St. Elaine—Terrebonne Parish

F. J. LeBlanc et al No. 1 Wurzlow, sec. 17-22s-18e. T.D. 10¾-in. csg. 1,008 ft.; bailed S.W.; tried to blow out; hole bridged; R.U. to pmp.
F. J. LeBlanc No. 2 Wurzlow, sec. 17-22s-18e. Drlg. sh. 1,837 ft.

Bayou Blue—Iberville Parish

Humble O. & R. Co. No. 4 Wilbert, sec. 74-9s-10w. Drlg. sd. 3,910 ft.

Bayou Cocotrie—Terrebonne Parish

Shell Pet. Corp. No. 2 Pelican, sec. 19-17s-15e. T.D. 2,167 ft.; fsg.
Shell Pet. Corp. No. 3 Pelican, sec. 19-17s-15e. Drlg. 700 ft.

Big Lake—Cameron Parish

Union Sulphur Co. No. 1 Henry Hebert, sec. 18-12s-8w. T.D. 9,212 ft.; perf. csg. 9,040-60 ft.; I.P. 100 B.P.D. P.L.O., ¾-in. ck.
Union Sulphur Co. No. 1 P. J. Hebert, sec. 18-12s-8w. T.D. 8,449 ft.; 6⅝-in. csg. 8,441 ft.; perf. csg. 8,337-40 ft.; tstg.

Black Bayou—Calcasieu Parish

Shell Pet. Corp. No. 38 Watkins. T.D. 5,140 ft.; drlg. plug.

Cameron Meadows—Cameron

Burton-Sutton Oil Co. No. 19 Sch. Ld., sec. 16-14s-13w. Drlg. sh. 1,362 ft.

Charenton—St. Mary Parish

Pan American Prod. Co. No. 1 Landry, sec. 25-13s-9e. Drlg. sd.&sh. 8,790 ft.
Pan American Ref. Co. No. 4 Laws Realty Co., sec. 30-13s-10e. Drlg. sdy. L. 8,650 ft.
Pan American Prod. Co. No. 1 Veeder, sec. 30-13s-10e. T.D. 9,462 ft.; P.B. 2,615 ft.; 7-in. csg. 2,615 ft.; tstd. S.W. at 3,940-48 ft.; pull screen.
Pan American Prod. Co. No. 1 Veeder-Hunt, sec. 30-13s-10e. T.D. 7,327 ft.; 7-in. csg. 3,989 ft.

Choctaw—Iberville Parish

Standard Oil Co. No. 10 Grove, sec. 52-9s-11e. T.D. 5,303 ft. in salt; D.S. stck.
Standard Oil Co. No. 7 Gay, sec. 52-9s-11e. Cmtd. 13⅜-in. csg. 956 ft.; drlg. sdy. sh. 3,835 ft.

Darrow—Ascension Parish

Humble O. & R. Co. No. 16 Community, sec. 29-10s-2e. Drlg.
Humble O. & R. Co. No. 11 Gumble, sec. 35-10s-2e. Drlg. sd. and sh. 7,212 ft.
Kiva Oil Co. No. 1 Dupiessis, sec. 69-10s-2w. R.U.

Dog Lake—Terrebonne Parish

Texas Co. No. 18 State, sec. 5-22s-16e. T.D. 7,705 ft.; P.B. 7,359 ft.; drlg. out cmt.

Edgerly—Calcasieu Parish

Crusader Pet., Inc., No. 1 Miller Bros., sec. 27-9s-11w. T.D. 6,082 ft.; oil sd.; 7-in. csg. 6,078 ft.

Four Isle—Terrebonne Parish

Texas Co. No. 9 L.L.&E., sec. 24-21s-16e. T.D. 6,946 ft.; D.S. stuck.

Garden Island—Plaquemines Parish

Texas Co. No. 22 State, sec. 37-23s-33e. T.D. 5,061 ft.; 7-in. csg. 5,061 ft.; I.P. 652 B.P.D., ¼-in. ck.

Gillis—Calcasieu Parish

Union Sulphur Co. No. 3 Bel, sec. 2-9s-8w. Core sd. 7,716 ft.
Union Sulphur Co. No. 8 Castle, sec. 13-9s-8w. T.D. 7,153 ft.; 5-in. csg. 7,153 ft.; flwd. oil and S.W.; set retainer; perf. csg. 5,180-82 ft.; cutting and pulling screen.
Union Sulphur Co. No. 7 Kaufman, sec. 13-9s-8w. Sdy. sh. 6,617 ft.

Hackberry—Cameron Parish

W. T. Burton No. 3 Lewis, sec. 22-12s-10w. R.U.
W. T. Burton No. 4 Vincent, sec. 22-12s-10w. T.D. 3,722 ft.; P.B.; drlg. sh. 4,105 ft.
W. T. Burton No. 1 Porter Ellender, sec. 27-12s-10w. Drlg. sh. 4,637 ft.
M. P. O'Meara No. 1 Rigmaden heirs, sec. 22-12s-10w. Drlg.
Stanolind O. & G. Co. No. 1-B Duhon, sec. 27-12s-10w. T.D. 6,233 ft.; 7-in. csg. 5,815 ft.; sdtrkg. 5,309 ft.
Stanolind O. & G. Co. No. 8 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 9 Carter & Sweeney, sec. 22-12s-10w. T.D. 5,429 ft.; P.B. 3,319 ft.; 7-in. csg. 3,308 ft.; drlg. plug.
Stanolind O. & G. Co. No. 10 Carter & Sweeney, sec. 22-12s-10w. Drlg.
Stanolind O. & G. Co. No. 11 Carter & Sweeney, sec. 22-12s-10w. R.U.
Stanolind O. & G. Co. No. 53 State, sec. 22-12s-10w. 10¾-in. csg. 1,930 ft.; drlg. sh. 6,646 ft.
Sutton-Burton Oil Co. No. 3-A Doiron, sec. 22-12s-10w. T.D. 4,948 ft.; 7-in. csg. 4,928 ft.
Texas Co. No. 23-B State, sec. 12-12s-9w. T.D. 5,448 ft.; P.B. 2,409 ft.; drlg. sh. 6,572 ft.
Union Sulphur Co. No. 9 Doiron, sec. 37-12s-10w. 5-in. csg. 6,176 ft.; P.B. 5,510 ft.; perf. csg. 5,485-5,510 ft.; swbg.

Lockport-Cameron Parish

Magnolia Pet. Co. No. 35 Miller, sec. 9-10s-9w. Drlg. sh. 1,565 ft.

Iowa—Jefferson Davis Parish

Magnolia Pet. Co. No. 12 Wait. T.D. 5,300 ft.; perf. csg. 5,219-23 ft.; I.P. 32 bbls. 24 hrs., 16/64-in. ck.

Jeanerette—St. Mary Parish

Herton Oil Co. No. 1 Banta, sec. 40-13s-9e. Set 7-in. csg. 9,768 ft.; drlg. sdy. sh. 10,024 ft.
Herton Oil Co. No. 5 Roans, sec. 40-13s-9e. Drlg. sh. 7,440 ft.

Jennings—Acadia Parish

Frank W. Bennett et al No. 1 Brethern and Christ Church, sec. 41-7s-2w. T.D. 4,875 ft.; P.B. 4,450 ft.; cd. oil sd. 6,986 ft.
W. T. Burton No. 3 J. J. Roborha, sec. 41-9s-2w. Oil sd. 6,886-6,912 ft.; cg. 6,950 ft.
Cosmo Pet. Co. No. 1 M. E. Crusel, sec. 42-9s-2w. Core sd. showing oil 7,154 ft.
D. D. Feldman et al No. 1 McFarlain, sec. 41-9s-2w. T.D. 6,840 ft.; 7-in. csg. 6,700 ft.; I.P. 840 B.P.D., ¼-in. ck.
Glassell No. 1 Bourgeaux, sec. 41-9s-2w T.D. 6,633 ft.; P.B. 5,452 ft.; prep. S.T. drlg. sh. and shells 6,468 ft.
Glassell & Glassell No. 3 McFarlain, sec. 41-9s-3w. Drlg. sh. 4,730 ft.
Louisiana Crusader Oil Co. No. 1 Lake Oil fee, sec. 45-9s-2w. T.A. 5,017 ft.; salt; P.B. 1,665 ft.; core sd.; show oil 6,884 ft.
M. P. O'Meara No. 1 McFarlain, sec. 41-9s-2w. Drlg. sdy. sh. 6,610 ft.
M. P. O'Meara No. 1 Moresi, sec. 41-9s-2w. Drlg.
Reiter Foster Oil Co. No. 2 Crusel, sec. 42-9s-2w. Spd.
S. Rhodes No. 2 Iowa-Jennings, sec. 45-9s-2w. R.U.
Superior Oil Co. No. 7 Leckelt, sec. 42-9s-2w. R.U.
Superior Oil Co. No. 5 Leckelt, sec. 42-9s-2w. Drlg. sh. 6,625 ft.
Superior Oil Co. No. 6 Leckelt, sec. 42-9s-2w. T.D. 7,225 ft.; 7-in. csg. 7,009 ft. tstg.; I.P. 600 B.P.D.
Superior Oil Co. No. 4 Jennings-Haywood, sec. 41-9s-2w. Drlg. sdy. sh. 2,687 ft.
Superior Oil Co. No. 2 Moresi, sec. 41-9s-2w. T.D. 6,829 ft.; oil sd.; reaming.
Superior Oil Co. No. 3 Moresi, sec. 41-9s-2w. Drlg. sh. 6,120 ft.

Lafitte—Jefferson Parish

Texas Co. No. 7 L.L.E., sec. 20-17s-24w. Drlg.
Texas Co. No. 2 Milling, sec. 20-17s-24e. Drlg. sdy. sh. 8,544 ft.
Texas Co. No. 1 State-Bayou Norman, sec. 28-17s-24e. Drlg. sh. 11,023 ft.

Lake Barre—Terrebonne Parish

Texas Co. No. 141 State, sec. 40-21s-19e. Drlg. Anhydrite 2,778 ft.

Lake Hermitage—Plaquemines Parish

Gulf Ref. Co. No. 7 Lafourche, sec. 12-18s-25e. Drlg. sdy. sh. 7,580 ft.

Lake Washington—Plaquemines Parish

Humble O. & R. Co. No. 25 Cockrell, sec. 35-20s-26e. T.D. 2,985 ft.; W.O.C.

Leesville—Lafourche Parish

Texas Co. No. 66 Leesville, sec. 26-21s-22e. T.D. 3,878 ft.; P.B. 3,510 ft.; perf. csg. 3,557-67 ft.; tstg.

Long Lake—Lafourche Parish

Fohs Oil Co. No. 2 State, sec. 65-17s-19e. R.U.
Fohs Oil Co. No. 3 State, sec. 65-17s-19e. 10¾-in. csg. 2,743 ft.; drlg. sh. 5,086 ft.

New Iberia—Iberia Parish

Wm. Hellis No. 3 Schwing, sec. 57-12s-7e. T.D. 5,019 ft.; P.B. and sdtrkd.; salt 5,509 ft.; S.D.
Texas Co. No. 3 Bryant, sec. 25-12s-7e. R.U.
Wm. Hellis No. 9 Bernard, sec. 54-12s-7e. T.D. 5,126 ft.; P.B. sdtrkd.; drlg. sdy. sh. 4,174 ft.
Wm. Hellis No. 10 Bernard, sec. 54-12s-7e. R.U.
Wm. Hellis No. 11 Bernard, sec. 54-12s-7e. R.U.
Wm. Hellis No. 6 Bullock-Burke, sec. 25-12s-7e. T.D. 4,817 ft.; P.B. and sdtrkd.; drlg. 3,420 ft.
Texas Co. No. 3 Coleste, sec. 25-12s-7e. T.D. 5,132 ft.; P.B.; drlg. sh. 4,216 ft.
Texas Co. No. 7-B Hanzen, sec. 54-12s-7e. Drlg. sdy. sh. 4,087 ft.

South Roanoke—Jeff Davis Parish

Union Sulphur Co. et al No. 1 T.R.S Farms Co., sec. 23-10s-4w. T.D. 9,151 ft.; 7-in. csg. on bttm.; perf. csg. 9,136-40 ft.; tstd. dry gas; P.B.; perf. 8,605-10 ft.; made squeeze job; W.O.C.

Starks—Calcasieu Parish

Capital Oil Co. No. 1 Lutcher-Moore, sec. 24-9s-13w. R.U.
Lutcher Moore No. 2 fee, sec. 19-9s-12w. Drlg. sh. 3,648 ft.
Turnbull et al No. 2 Industrial Lbr. Co., sec. 19-9s-12w. T.D. 4,861 ft.; S.D.

Sulphur—Calcasieu Parish

Union Sulphur Co. No. 849 fee, sec. 29-9s-10w. Drlg. broken rock 3,498 ft.
Union Sulphur Co. No. 850 fee, sec. 29-9s-10w. Drlg. sh. 1,872 ft.
Union Sulphur Co. No. 847 fee, sec. 29-9s-10w. T.D. 5,570 ft.; 7-in. csg. 5,570 ft.; W.O.C.

St. Martinsville—St. Martin Parish

Tide Water Oil Co. No. 1-B Smedes, sec. 18-11s-6e. Drlg. sh. 1,576 ft.

Tepetate—Acadia Parish

Continental Oil Co. No. 2 Vincent and Welch, sec. 29. T.D. 8,309 ft.; I.P. 153 B.P.D., 5/32-in. ck.

Valentine—Lafourche Parish

Pan American Prod. Co. No. 8 Harang, sec. 9-17s-20e. T.D. 7,504 ft.; P.B.; sdtrkd.; setting csg. to test sd. 5,394-5,420 ft.; I.P. 27 B.P.H., ¼-in. ck.
Pan American Prod. Co. No. 10 Harang, sec. 7-17s-20e. Drlg. sh. 5,573 ft.
Pan American Prod. Co. No. 11 Harang, sec. 8-17s-20e. Spudded.

Venice—Plaquemines Parish

Tide Water Oil Co. No. 4 Manhattan Fruit Co., sec. 26-21s-30e. Driving piling.

Vinton—Calcasieu Parish

Katina Oil Co. No. 2 Vincent, sec. 34-10s-12w. Drlg. sd. 3,111 ft.
Superior Oil Co. No. 1 Grav, sec. 4-11s-12w. Drlg. sd. and sh. 5,112 ft.
Vinton Pet. Co. No. 23 Vincent, sec. 34-10s-12w. R.U.

White Castle—Iberville Parish

T. D. Humphray No. 1 E. B. Adams, sec. 1-11s-12e. Spudded 70 ft.
Shell Pet. Corp. No. 5 Shingle, sec. 12-11s-12e. R.U.

S. LOUISIANA WILDCATS

Acadia Parish

H E. Dalton No. 1 Setting, sec. 17-7s-1w. Drlg. sh. and L. 5,103 ft.
Humble O. & R. Co. No. 1 Floyd Williams, sec. 34-8s-1e. T.D. 9,339 ft.; P.B. 8,750 ft. perf. csg. 8,730-40 ft.; tstd. S.W.; P.B. 8,406 ft.; tested S.W.; P.B. 8,330 ft.; W.O.C.
Humble O. & R. Co. No. 1 R. A. Sarver, sec. 35-10s-1e. Drlg. sd. 1,320 ft.
Magnolia Pet. Co. No. 1 Duson, sec. 14-8s-2w. R.U.
T. S. Markley No. 1 Daigle, sec. 19-7s-2e. T.D. 3,896 ft.; P.B. to sdtrk. at 3,333 ft.

Calcasieu Parish

D. & D. Oil Co. No. 2 Lutcher-Moore, sec. 1-8s-13w. Drlg. sh. and L. 8,115 ft.

Cameron Parish

Humble O. & R. Co. No. 1 Miami Corp., sec. 8-14s-5w. Drlg.
Pure Oil Co. No. 2 State, sec. 14-13s-3w. Drlg. sdy. sh. 7,928 ft.

Cameron Parish—Gulf of Mexico

Superior Oil Prod. Co. et al No. 1 State Gulf of Mexico, 3,800 ft. W, 6,200 ft. S of SE cor. of irregular sec. 4-15s-8w. M.I.R.

East Baton Rouge Parish

Cavalier Oil Co. No. 1 Elliott, sec. 3-9s-2e. T.D. 6,127 ft.; D.S. stuck.

Evangeline Parish

Continental Oil Co. No. 1 Tate, sec. 44-3s-2e. T.D. 9,098 ft.; sd. and sh. showing oil cored 8,970-9,030 ft.; 7-in. csg. 9,098 ft.; W.O.C.
Schlicher Prod. Co. No. 1 Denois Ld. & St. Stone Co., sec. 35-3s-1w. 13⅜-in. csg. 720 ft.; T.D. 2,306 ft.; fsg.

Iberia Parish

Jefferson Lake Oil Co. No. 414 State Lake Pigneur, Twp. 12s-5e. T.D. 7,071 ft.; swbd. S.W. and S.O.; temp. abd.
Texas Co. No. 2-B Vermilion Bay, sec. 20-16s-5e. Drlg. sd. and sh. 2,418 ft.

Jefferson Parish

Triangle Oil Co. No. 1 Conroe, sec. 12-12s-11e. S.D. 3,501 ft.

Lafourche Parish

Amerada Pet. Corp. No. 1 South Coast Corp., sec. 34-15s-19e. Drlg. sh. 3,325 ft.
Gulf Oil Corp. No. 3 State P.P., sec. 36-23s-21e. Recvd. 1,000 ft. of oil on 6-min. D.S.T. at 6,749-6,846 ft.; 9⅝-in. csg. 6,832 ft.; drlg. 7,121 ft.; rec. 2,000 ft. P.L.O. on D.S.T. 6,958-70 ft.

Livingston Parish

Grubb et al No. 1 Evans, sec. 47-7s-2e. T.D. 7,656 ft.; D.S. stuck; fsg.

Plaquemines Parish

Gulf Oil Corp. No. 3 State (Jackson dist). Drlg. sdy. sh. 2,629 ft.
Humble O. & R. Co. No. 6 Orleans Levee Bd., sec. 10-18s-15e. R.U.
Humble O. & R. Co. No. 10 Orleans Levee Bd., sec. 10-18s-15e. Drlg. sdy. sh. oil show 704-42 ft.

St. Bernard Parish

Southern Sulphur Co. No. 2 State Lake Borgne, sec. 38-14s-15e. 13⅜-in. csg. 303 ft.; S.D. 3,440 ft.

St. Martin Parish

Texas Co. No. 10 St. Martin, sec. 15-8s-7e. T.D. 5,360 ft.; fsg.

St. Mary Parish

Texas Co. No. 1 State-Bateman Lake, sec. 21-16s-12e. 7⅝-in. csg. 10,515 ft.; core sd. and sh. 10,828 ft.

Terrebonne Parish

Barnsdall Oil Co. No. 1 Dilbert, Stark & Brown Sur., sec. 110-16s-15e. Driving piling.

Vernon Parish

Castor Creek Drlg. Co. No. 1 Llano Del Rio, Inc., sec. 34-2n-9w. Drlg.

ARKANSAS

Ashley County

Phillips Pet. Co. No. 1 Godfrey, C S½ SW NW sec. 18-17-9. T.D. 5,611 ft.; D.&A.

Columbia County

Standard of La. No. 1 J. P. McKean, SW sec. 8-16s-22w. T.D. 6,031 ft.; rng. 9-in. csg.
Tide Water-Seaboard Oil Co. No. 1 Crumpler, SW NE SW sec. 24-17-19w. Drlg. 50 ft.

Cross County

Manning & Martin, Inc., No. 1 Park-Greseck, NW NE NE sec. 4-6n-5e. Drlg. 3,100 ft.

Hempstead County

H. D. Easton et al No. 1 R. M. LaGrone, sec. 5-12-26. S.D. 2,719 ft.
Shephard & Todd et al No. 1 Smith, NW SW NE sec. 11-11-25. S.D. 2,290 ft.

Miller County—Rodessa

F. W. Burford No. 1 Ahern, S½ NE SW sec. 10-20-28. Drlg. 4,075 ft.
F. W. Burford No. 1 August, S½ SE SW sec. 8-20-27. Drlg. 3,075 ft.
F. W. Burford No. 1 A. A. Capps, W½ sec. 14-20-28. Comp.; 10,000,000 ft. gas; T.D. 6,085 ft.
F. W. Burford No. 2 A. A. Capps, sec. 14-20-28. Drlg. 2,940 ft.
F. W. Burford No. 1-B A. A. Capps, NE SE SE sec. 11-20-28. Drlg. 5,785 ft.

F. W. Burford No. 3 Easton, sec. 11-20-28. Drlg. 6,075 ft.

F. W. Burford No. 1 Gardner-Means, SW NW sec. 11-20-27. Drlg. 3,575 ft.

F. W. Burford No. 1-B G. G. Gerald, NE S½ sec. 15-20-28. Drlg. 5,511 ft.

H. L. Hunt No. 1 Womack, SE sec. 10-20-28. Drlg. 4,950 ft.

H. L. Hunt No. 2 Womack, NE SW SE sec. 10-20-28. Drlg. 2,530 ft.

H. L. Hunt No. 3 Womack, NW SW SE sec. 10-20-28. R.U.

Roger Lacey No. 1 Grogan, SE cor. sec. 15-20-28. Drlg. 4,005 ft.

Wm. M. Layton No. 4 Terry, SW cor. sec. 14-20-28. Drlg. 4,145 ft.

McClanahan et al No. 2 A. A. Capps, SW sec. 11-20-28. Comp.; flw. 100 B.P.D.; T.D. 6,061 ft.

McClanahan et al No. 3 Capps, sec. 11-20-28. Drlg. 1,850 ft.; second hole.

McClanahan et al No. 4 Capps, NE NE SW sec. 11-20-28. R.U.

McClanahan et al No. 15 Capps, NW SW SW sec. 11-20-28. R.U.

McClanahan et al No. 1-B Capps, N½ SW SW sec. 12-20-28. Drlg. 385 ft.

J. R. Ostrom No. 1 J. O. Gerrald, NW E½ sec. 15-20-28. Drlg. 180 ft.

Roberts Bros. Drlg. Co. No. 2 W. A. Capps, SW NW SE sec. 16-20-28. Drlg. 2,495 ft.

Roberts Bros. Drlg. Co. No. 3 W. A. Capps, SE SW NE sec. 16-20-28. Drlg. 2,050 ft.

Pulaski County

A. L. Kitselman No. 2 A. L. Kitselman, Jr., SE SE SW sec. 2-1s-13e. Drlg. 1,198 ft.

Union County—Schuler

E. M. Jones et al No. 1 Marine Oil Co., NW SW SE sec. 17-18-17. T.D. 7,615 ft.; prep. run csg.; oil sd.

Lion Oil Ref. Co. No. 1-A Edna Morgan, O.W.D.D.; fsg. for D.S.; T.D. 6,183 ft.

W. D. Wingfield et al No. 1 Sou. Kraft Corp., SW NE sec. 18-19-14. S.D. 5,029 ft.

TEXAS

Week Ending September 11

GULF COAST FIELDS

Hastings—Brazoria County

Humble O. & R. Co. No. 1 G. W. Alexander, H.T.&B. Sur. No. 28. T.D. 6,080 ft.; 5½-in. csg. 6,020 ft.

Humble O. & R. Co. No. 2-D W. F. Beers, Perry and Austin Sur. R.U.

Humble O. & R. Co. No. 8-B Brown, Perry and Austin Sur. R.U.

Humble O. & R. Co. No. 16 Cecil Brown, W. H. Snyder Sur. T.D. 6,118 ft.; 5½-in. csg. 6,114 ft.

Humble O. & R. Co. No. 7 R. D. Haden, R. Hoppel Sur. Drlg. sh. and L. 2,260 ft.

Humble O. & R. Co. No. 2 Schindler. T.D. 5,990 ft.; I.P. 26 B.P.H., ¼-in. ck.

Humble O. & R. Co. No. 1 R. P. Woods, Perry and Austin Sur. T.D. 6,080 ft.; I.P. 27 B.P.H., ¼-in. ck.

Jay Simmons No. 1 G. H. Alexander, H. T.&B. Sur. No. 28. T.D. 6,060 ft.; 7-in. csg. 5,970 ft.; I.P. 10 B.P.H., ¼-in. ck.

Stanolind O. & G. Co. No. 4 R. L. Autrey, H.T.&B. Sur. No. 7. R.U.

Stanolind O. & G. Co. No. 3-B W. H. Avitts, H.T.&B. Sur. Drk.

Stanolind O. & G. Co. No. 7-B C. D. Brown. R.U.

Stanolind O. & G. Co. No. 5 T. C. Edwards, Wm. Henry Sur. Drlg. sh. 5,853 ft.

Stanolind O. & G. Co. No. 6 J. F. Law, H. T.&B. Sur. No. 36. Drk.

Stanolind O. & G. Co. No. 9 L. D. Shaw, H. T.&B. Sur. No. 36. Drlg. 800 ft.

Stanolind O. & G. No. 12 H. H. Ford, H. T.&B. Sur. No. 29. T.D. 6,080 ft.; 7-in. csg. 6,077 ft.; I.P. 16 B.P.H., ¼-in. ck.

Stanolind O. & G. Co. No. 1 Matsushita, H. Stevens Sur. 10¾-in. csg. 1,255 ft.; T.D. 6,080 ft.; 7-in. csg. 6,047 ft.

Stanolind O. & G. Co. No. 16 Paul, A.C. H.&B. Sur. No. 2. T.D. 6,090 ft.; I.P. 605 B.P.D., ¼-in. ck.

Stanolind O. & G. Co. No. 1 Randall, A.C. H.&B. Sur. No. 2, Lot 29.T.D. 6,080 ft.; 7-in. csg. 6,078 ft.

Stanolind O. & G. Co. No. 10 Turner, A. C.H.&B. Sur. No. 1. T.D. 6,080 ft.; 7-in. csg. 6,075 ft.

Stanolind O. & G. Co. No. 5 Wooster, A. C.H.&B. Sur. No. 1. T.D. 6,080 ft.; 7-in. csg. 6,079 ft.; I.P. 479 B.P.D., ¼-in. ck.

Lockridge—Brazoria County

Gulf Oil Corp. No. 3 Baker, J. W. Hall Sur. Drlg. sh. and L. 3,537 ft.

Gulf Oil Corp. No. 1 Great Southern, E. D. Robertson Sur. Drlg. sdy. L. 4,599 ft.

Dr. C. M. Lusk No. 1 Ramsey State Farm, J. W. Hall Sur. T.D. 6,369 ft.; 7-in. csg. on bttm.; drlg. plug.

Shell Pet. Corp. No. 1-B Ramsey, J. W. Hall Sur. T.D. 6,374 ft.; P.B. T.D. 6,367 ft.; set retainer; reperf. csg. to test 6,362-65 ft.; I.P. 237 B.P.D., ¾-in. ck.

Manvel—Brazoria County

F. D. Jones et al No. 1-A Bankers Mtg., E. Little Sur., Lot 75. Drk.

Texas Co. No. 3 W. O. Morrison, A.C.H.& B. Sur. No. 91. T.D. 5,680 ft.; 7-in. csg. 5,636 ft.; I.P. 606 B.P.D., ¼-in. ck.

Texas Co. No. 4-B Way, Thos. Spraggin Sur. T.D. 4,127 ft.; 7-in. csg. 4,127 ft., flwd. 65 bbls. net oil, 48% S.W.; P.B. 4,114 ft.; I.P. 308 B.P.D., ¼-in. ck.

Old Ocean—Brazoria County

Harrison & Abercrombie No. 1 Larsen C. Breen Sur. T.D. 10,067 ft.; 7-in. csg. 10,050 ft.

Harrison & Abercrombie No. 1 Smith, C. Breen Sur. Drlg. sh. 7,137 ft.

Sandy Point—Brazoria County

H. J. De Arman No. 2 J. A. Fite, D. Talley Sur. Drlg. sh. 5,837 ft.

West Columbia—Brazoria County

Texas Co. No. 3 Phillips, G. Tennille Sur. Drlg. sh. and L. 3,184 ft.

Texas Co. No. 1 T. L. Smith, G. Tennille Sur. Drlg. broken L. 4,893 ft.

Calhoun—Heyser—Victoria County

Blanco Oil Co.-Buchanan No. 1 R. B. Morris, A. Sisneros Sur. R.U.

Geo. Echols No. 6 W. H. Bennett, J. E. Galban Sur. T.D. 5,749 ft.; 7-in. csg. 5,738 ft.; I.P. 5 B.P.H., 9/64-in. ck.

Gulf Oil Corp. No. 1 Schultz, J. E. Galban Sur. R.U.

Gulf Oil Corp. No. 1 T. P. Traylor, J. E. Galban Sur. Drlg. sh. 4,471 ft.

Humble O. & R. Co. No. 3 Marshall, A. Sisneros Sur. Drlg. sh. 5,300 ft.

Humble O. & R. Co.-Plymouth Oil Co. No 18-A P. H. Welder, J. M. Rios Sur. Drlg. sh. 5,400 ft.

Magnolia Pet. Co. No. 2 O. M. Lander, J. E. Galban Sur. Drlg. sh. 900 ft.

Normandie Oil Co. No. 3 Cook, A. Sisneros Sur. T.D. 5,599 ft.; perf. csg. 5,583-93 ft.; I.P. 29 B.P.H., ⅜-in. ck.

Normandie Oil Co. No. 7 J. G. Cook, A. Sisneros Sur. R.U.

Portilla Drlg. Co. No. 9-C P. H. Welder, J. M. Rios Sur. Drlg. sh. 4,520 ft.

Sinclair Prairie Oil Co. No. 6 Bennett, A. Sisneros Sur. T.D. 5,740 ft.; 7-in. csg. 5,730 ft.; tstg.

Sun Oil Co. No. 2 W. N. Coffey, J. Galban Sur. Drlg. sh. 3,100 ft.

Anahuac—Chambers County

Humble O. & R. Co. No. 11 Broussard, sec. 59, H.&T.C. Sur. Drlg. sh. 6,012 ft.

Humble O. & R. Co. No. 14 Johnson, sec. 47, H.&T.C. Sur. Drlg. sh. 6,299 ft.

Humble O. & R. Co. No. 28 Middleton, sec. 58, H.&T.C. Sur. T.D. 7,080 ft.; run csg.

Humble O. & R. Co. No. 10 Zappe, sec. 51, H.&T.C. Sur. 9⅝-in. csg. 1,023 ft.; W. O.C.

Cotton Lake—Chambers County

Salt Dome Oil Corp. No. 2-B Lawrence, S. Barrow Sur. 10¾-in. csg. 1,119 ft.' T.D. 6,510 ft.; 7-in. csg. 6,505 ft.; I.P. 146 B.P.D.

Seabreeze—Chambers County

Sun Oil Co. No. 3 Acorn, H.T.&B. Sur. 103. 13⅜-in. csg. 1,393 ft.; drlg. sh. and sd. 7,174 ft.

Sun Oil Co. No. 1 Jackson, Yarbo Sur. T.D. 8,580 ft.; tested S.W.; drlg. deeper.

Turtle Bay—Chambers County

Stanolind No. 4-A Middleton, S. Burney Sur. T.D. 6,615 ft.; pulling screen.

Stanolind O. & G. Co. No. 5 Middleton, M. A. Carroll Sur. 10¾-in. csg. 1,185 ft.; drlg. sh. and sd. 6,505 ft.

Stanolind O. & G. Co. No. 1 Morrisey, M. A. Carroll Sur. T.D. 6,625 ft.; 7-in. csg. 6,610 ft.; R.U. to pump.

Stanolind O. & G. Co. No. 1 Silva, S. Burney Sur. 10¾-in. csg. 1,188 ft.; drlg. sh. 4,600 ft.

Sun Oil Co. No. 6 Chambers, M. A. Carroll Sur. T.D. 6,596 ft.; 7-in. csg. 6,582 ft.; I.P. 536 B.P.D., ¼-in. ck.

Garwood—Colorado County

Coyle-Concord No. 2 Mary South, sec. 41, I.&G.N. Sur. Cmtd. 10⅝-in. csg. 628 ft. T.D. 6,034 ft.; tstd. 500 lbs. W.P.; 30 ft. dist.; tstg.; showing gas.

Orchard—Fort Bend County

Gulf Oil Corp. No. 53 Moore, J. Frazier Sur. Drlg. sh. 5,217 ft.

Gulf Oil Corp. No. 55 J. M. Moore, J. Frazier Sur. R.U.

Dickinson—Galveston County

Atlantic Ref. Co. No. 2 Anderson, W. G Banks Sur. 10¾-in. csg. 1,901 ft.

Bennett-Kenyon Oil Co. No. 2 B. Schroeder, W. G. Banks Sur. Drlg. sh. 6,448 ft.

Humble O. & R. Co. No. 4-A Maco Stewart, W. K. Wilson Sur. Drlg. sh. 4,930 ft.

Ken-Ben Oil Co. No. 5 Stewart, W. K. Wilson Sur. Core sh. 8,530 ft.

Pure Oil Co. No. 3-B J. W. Shelor, W. G. Banks Sur. 10¾-in. csg. 1,833 ft.

Stanolind O. & G. Co. No. 3 Damiani, W. K. Wilson Sur. T.D. 8,472 ft.; P.B.; drlg. 6,950 ft.

Turman Oil Co. No. 3 Stewart, W. K. Wilson Sur. Drlg. sh. 8,527 ft.

High Island—Galveston County

Stanolind O. & G. Co. No. 10 B.&O., M Dunman Sur. 10¾-in. csg. 1,315 ft.; drlg. sh. and L. 4,593 ft.

Stanolind O. & G. Co. No. 63 Cade, M. Dunman Sur. R.U.

Stanolind O. & G. Co. No. 1 C. E. Smith, M. Dunman Sur. T.D. 6,399 ft.; 7-in. csg. 5,180 ft.

Silsbee—Hardin County

Republic-Houston Oil Co. No. 21 Brooks fee, G. W. Brooks Sur. T.D. 6,910 ft.; 7-in. csg. 6,898 ft.

Republic Prod. Co.-Houston Oil Co. No. 22 Brooks, G. W. Brooks Sur. Drlg. sd. and sh. 3,212 ft.

Clinton—Harris County

Stanolind O. & G. Co. No. 1 A. S. Moody, Reels & Trobough Sur. 10¾-in. csg. 2,522 ft.; T.D. 4,600 ft.; rng. 5¾-in. csg. to test.

Friendswood—Harris County

V. H. Borsodi No. 1 Berlowitz, Blk. 3, T. Choate Sur. R.U.

V. H. Borsodi No. 2 V. R. Taylor, T. Choate Sur. T.D. 6,098 ft.; top oil sd. 6,078 ft.; 7-in. csg. 6,078 ft.; I.P. 20 B. P.H., ¼-in. ck.

Humble O. & R. Co. No. 1 Gray, T. Choate Sur. Drlg. sh. 5,530 ft.

Fairbanks—Harris County

Amerada Pet. Corp. No. 1 F. A. Carpenter, F. Fry Sur. No. 267. R.U.

Hamill and Smith No. 1 Dopsaluf, W.C. R.R., Blk. 1, sec. 4. Set surf. csg. 1,200 ft.

Humble—Harris County

John Deering No. 1 Wm. Lee, E. Rhule Sur., 5,000-ft. test. Drlg. sh. 4,527 ft.

South Houston—Harris County

Stanolind O. & G. Co. No. 2 H. L. Bennett et al, Unit 13, H.T.&B. Sur. No. 6. T.D. 4,068 ft.; 5¾-in. csg. 4,051 ft.

Stanolind O. & G. Co. No. 2 H. G. Funk, Callahan and Vince Sur. 9⅝-in. csg. 1,479 ft.; T.D. 4,825 ft.; made drill stem test.

Tomball—Harris County

Humble O. & R. Co.-Magnolia Pet. Co. No. 3 Scherer, J. M. Hooper Sur. Drlg. sh. 4,180 ft.

Humble O. & R. Co.-Magnolia Pet. Co. No. 5-B Hobs. Drlg. sh. 2,153 ft.

Humble O. & R. Co. No. 1 Thomas, J. Pruitt Sur. T.D. 5,564 ft.; 5½-in. csg. 5,558 ft.; I.P. 524 B.P.D., ¼-in. ck.

Mabee Drlg. Co. No. 3 W. Baker, J. House Sur. Drlg. sh.&L. 3,395 ft.

Texas Co. No. 4 Sam Lewis, J. Pruitt Sur. R.U.

Edna—Jackson County

Steinberger Pet. Corp. No. 2 Druschell, Rodriguez Sur. Core sh. 5,378 ft.

Ganado—Jackson County

Texas Co. No. 1 C. E. Niebuhr, Morris & Cummings Sur. No. 4. Drlg. sh. 6,423 ft.

Amelia—Jefferson County

Humble O. & R. Co. No. 9 Phelan, C. Williams Sur. Run 9⅝-in. csg.; T.D. 6,775 ft.; I.P. 648 B.P.D., ¼-in. ck.

Humble O. & R. Co. No. 15 Tyrell-Combest, A. Savery Sur. Drlg. sh. 5,437 ft.

Glenn H. McCarthy No. 5-A Longe, H. Williams Sur. 10¾-in. csg. 1,120 ft.; drlg. sd. 5,889 ft.

Stanolind O. & G. Co. No. 6 McCormick, H. Williams Sur. 10¾-in. 1,176 ft.

Stanolind O. & G. Co. No. 7 Sargl, H. Williams Sur. T.D. 6,435 ft.; 7-in. csg. 6,016 ft.; perf. csg. 5,976-80 ft.; tested dry gas.

Sun Oil Co. No. 2 Galley, A. Houston Sur. T.D. 5,902 ft.; run 7-in. csg.

Big Hill—Jefferson County

Stanolind O. & G. Co. No. 2 May Fitzhugh, Wm. McFadden Sur. T.D. 4,047 ft.; 10¾-in. csg. 4,040 ft.; drlg. sh. and L. 4,181 ft.

Stanolind O. & G. Co. No. 4-A Pipkin, T.&N.O. Sur. Drlg. sh. 5,031 ft.

Fannett—Jefferson County

Gulf Oil Corp. No. 1 Junker-Spencer, W. H. Smith. Drlg. sh. 3,524 ft.

LaBelle—Jefferson County

Sun Oil Co. No. 1 John Ward, 933 ft. S of No. 2 Broussard, Wm. Burton Sur 18⅝-in. csg. 109 ft.; 9⅝-in. csg. 8,538 ft.; 7-in. csg. 9,951 ft.; T.D. 10,052 ft.; cmtg. hole in csg.

Nome—Jefferson County

Sun Oil Co. No. 5 Long, J. Blair Sur. Drlg. sh. 6,045 ft.

North Cheek—Jefferson County

Magnolia Pet. Co. No. 2 Phelan, S. Stevens Sur. Drlg. sh. 8,424 ft.

Cleveland—Liberty County

Gulf Oil Corp. No. 1 Neville, J. Pleasants Sur. Drlg. sh. 3,741 ft.

Hankamer—Liberty County

Gulf Oil Co. No. 25 E. W. Boyt, Amos Allen Sur. Drlg. sh. 6,781 ft.

Hardin—Liberty County

Jack Frazier No. 1-A Lynott & Buffam, J. Robeson Sur. 10¾-in. csg. 1,078 ft.; drlg. sh. 4,795 ft.

Shell Pet. Corp. No. 1 Cessna, H. B. Johnson Sur. T.D. 7,608 ft.; oil sd.; I.P. 20 B.P.H., ¼-in. ck.

Strake Pet. Co. No. 1 W. T. Finley, A. B. Hardin Sur. R.U.

Woodley Pet. Co. No. 2 W. McMurtay, H. B. Johnston Sur. T.D. 5,958 ft.

Hull—Liberty County

Houston Prod. Co. No. 3 J. C. Baldwin, J. Devore Sur. Drlg. sh. 300 ft.

Republic-Houston Oil Co. No. 163 Dolbear, J. Devore Sur. Drlg. sh. 1,812 ft.; no report.

Texas Co. No. 8 Hannah fee, J. Devore Sur. T.D. 5,249 ft.; P.B. 3,800 ft.; sdtrkd; T.D. 4,975 ft.; 7-in. 4,974 ft.

Texas Co. No. 9 Hannah fee, J. Devore Sur. T.D. 2,778 ft.; P.B. to S.T. at 2,541 ft.; T.D. 4,795 ft.; 7-in. csg. 4,728 ft.

Bay City—Matagorda County

Hamman Expl. Co. No. 1 H. E. Thompson, Hall Sur. Drlg. sh. 3,790 ft.

Buckeye—Matagorda County

United North & South Dev. Co., B. Cotton Sur. R.U.

United North & South Development Co. No. 1 G.B.M., Cotton Lge. T.D. 8,667 ft.; 7-in. csg. 8,667 ft.; reperf. csg.

Palacios—Matagorda County

Atlantic-McCarthy No. 3 Foley Ld. Co., L. Goodwin Sur. Drk.

Atlantic-McCarthy No. 2 Palacios State Bank, L. Goodwin Sur. Loc.

Glenn McCarthy No. 2 Foley, L. Goodwin Sur. Drlg. sh. 8,000 ft.

Glenn McCarthy No. 1 W. M. Rohls, sec. 10, L. Goodwin Sur. T.D. 8,843 ft.; D.S. stuck; perf. csg. 7,862-80 ft.; well blew out; D.S. stuck; fsg.

Sun Oil Co. No. 1 Bay Shore Farms, Lewis Goodwin Sur. Drlg. sh. 8,929 ft.

Orange—Orange County

Texas Co. No. 12 Kuhn, T. J. Nolgrass Sur. T.D. 7,007 ft.; abd.

Livingston—Polk County

Gem Oil Co. No. 5 Kavanaugh, A. Viesca Sur. R.U.

Segno—Polk County

Gulf Oil Corp. No. 8 Wing, sec. 14, I.&G. N. Sur. Core sh. 5,525 ft.

Refugio—Refugio County

Houston Oil Co. No. 34 Rooke, Thos. Mullen Sur. Core sdy. sh. 5,499 ft.

South Oil Corp. No. 10 Heard, Refugio townsite. Core oil sd. 4,918 ft.

Tomoconnor—Refugio County

Hewitt and Daugherty No. 55 O'Connor, O'Connor-Swisher Sur. Core sd. 5,833 ft.

Hewitt and Daugherty No. 56 O'Connor, O'Connor-Swisher Sur. Core sd. and sh. 5,933 ft.

Spurger—Tyler County

Republic-Houston Oil Co. No. 4 Hurd, N. Hurd Sur. T.D. 7,658 ft.; 7-in. csg. 7,635 ft.; tstd. S.W.; cd. 7,705 ft.; rec. 510 ft. oil on 8½-min. D.S.T. 7,698-7,705 ft.; recmtg. 161 ft. of 5-in. liner at 7,705 ft.

Republic-Houston Oil Co. No. 5 Hurd fee, N. Hurd Lge. Drk.

McFadden—Victoria County

Transwestern Oil Co. No. 4. McFaddin Sur. T.D. 4,413 ft.; I.P. 114 bbls. in 14 hrs., ¼-in. ck.

Placedo—Victoria County

Barnsdall Oil Co. No. 24 Pickering and Roos, S.A.&M.G. Sur. Drlg. sh. 1,800 ft.

Barnsdall Oil Co. No. 25 Pickering and Roos, S.A.&M.G. Sur. No. 5. Spudded.

H. B. Ownby No. 5 Malek, S.A.&M.G. Sur. No. 7. Core sh. 4,710 ft.

H. B. Ownby No. 3 T. P. Traylor, S.A.& M.G. Sur. No. 7. T.D. 4,769 ft.; R.U. to pmp.

Tellener—Victoria County

Gulf Oil Corp. No. 1 Mahon and Buhler, W. C. Carroll Sur. Drlg. sh. 3,478 ft.

Magnolia Pet. Co. No. 2 Book, T.&N.O. Sur. Drlg. sh. 3,710 ft.

Clay Creek—Washington County

Sun Oil Co. No. 7 Droeger, J. F. Perry Sur. Drlg. sh. 3,755 ft.

Five Corners—Wharton County

Texas Co. No. 9-B Pierce, J. Caldwell Sur. 10¾-in. csg. 1,133 ft.; drlg. sh. and L. 3,903 ft.

Magnet—Wharton County

Atlantic Ref. Co. No. 3-B Cockburn, Smith & McKenzie Sur. Cmtd. 10¾-in. csg. T.D. 5,542 ft.; 7-in. csg. on bttm.; set retainer 5,525 ft.; I.P. 105 B.P.D., ⅛-in. ck.

Atlantic Ref. Co. No. 4-B H. C. Cockburn, Smith and McKenzie Sur. 10¾-in. csg. 1,363 ft.

Humble O. & R. Co. No. 1 Cockburn, S. Castleman Sur. 10¾-in. csg.; 1,236 ft.; T.D. 5,550 ft.; 7-in. csg. 5,540 ft.; started making S.W.; reperf. csg. 5,525-30 ft.; comp. as dry gas well.

Humble O. & R. Co. No. 2 Cockburn, Smith & McKenzie Sur. Drlg. L. 3,829 ft.

Peyton Bros. No. 1 Gish, Lot 2, Blk. 84, M.L.T. Co. Subd., Smith & McKenzie Sur. 10¾-in. csg. 1,112 ft.; T.D. 5,529 ft.; 7-in. csg. 5,529 ft.; would not flow; installing flow valves.

Texas Crusader Oil Co. No. 2 H. C. Cockburn, Smith & McKenzie Sur. Loc.

Pickett Ridge—Wharton County

Texas Co. No. 33-A Pierce Est., G.B.&N. Sur. No. 4; 9,000-ft. test. T.D. 8,408 ft.; P.B. and sdtrkd. 7,458-92 ft.; T.D. 8,408 ft.; P.B. and sdtrkd. 8,353 ft.; T.D. 8,555 ft.; rmg.

Withers—Wharton County

Texas Co. No. 31-C Pierce, Wm. Pettus Sur. T.D. 5,557 ft.; 7-in. csg. 5,552 ft. sdtrkd.; drlg. 5,570 ft.

Texas Co. No. 36-C Pierce Est., Wm. Pettus Sur. T.D. 5,553 ft.; 7-in. 5,547 ft.

Texas Co. No. 38-C Pierce, J. Caldwell Sur. R.U.

Texas Co. No. 2 A. C. Thompson, Wm. Pettus Sur. Drlg. sh. and L. 1,997 ft.

GULF COAST WILDCATS

Brazoria County

Jack Frazier et al No. 1 Temple Lbr. Co., H.T.&B. Sur. No. 35. T.D. 7,500 ft.; abd.

Humble O. & R. Co. No. 1 W. B. Munson, S. Carter Sur. R.U.

Pure Oil Co. No. 1 P. M. Slade S. F. Austin Lge. T.D. 8,397 ft.; hole heaved to 8,120 ft.; fsg.

Texas Gulf Prod. Co. No. 1 W. D. Adams, H.T.&B. Sur. No. 40. Abd. 7,510 ft.
Texas Co. No. 2 Robbins, James W Brougham Sur. T.D. 7,557 ft.; P.B.; 5,930 ft.; W.O.

Chambers County

Merit Oil Co. No. 1 T. and M. Wright, C. Smith Sur. 10¾-in. csg. 1,302 ft.; drlg. sh. 4,537 ft.;

Fort Bend County

Humble O. & R. Co. No. 1 Schultze, R. Hodge Sur. T.D. 1,010 ft.; drlg. sh. 3,112 ft.
Research, Inc., No. 1 Moore, S. Kennedy Sur. Drlg. L. 6,098 ft.
Windward Oil Co. No. 1 P. W. Sims, sec. 1, H.&T.C. Sur. R.U.

Galveston County

Maco Stewart No. 1 fee, Chas. Spillman Sur. Cmtd. 16-in. csg. 72 ft.; T.D. 5,156 ft.; 5½-in. csg. 5,153 ft.; perf. 5,132-39 ft.; I.P. 10 B.P.H., ¼-in. ck.

Hardin County

Coronado Oil Co. No. 1 Ryan, J. G. Bell Sur. 10¾-in. csg. 480 ft.; drlg. sh. 3,137 ft.
Humble O. & R. Co. No. 1 Shone, S. R. Fisher Sur. Drk.

Harris County

Texas Gulf Prod. Co. No. 1 H. J. Moore, sec. 18, W.C.R.R. Sur. Drlg. sh. 5,337 ft.
West Prod. Co. No. 1 Ammon Underwood, Nicklos Clopper Sur. T.D. 8,582 ft.; abd.

Liberty County

O. C. Garvey No. 1 A. C. Weaver, T. Devers Sur. 10¾-in. csg. 440 ft.; S.D. 4,011 ft.
Humble O. & R. Co. No. 2 Sabine Tram, Malinda Whittington Sur. (Devers area). Drlg. sh. 5,212 ft.

Matagorda County

Continental Oil Co. No. 2 Hawkins Est., D. McCarty Sur. Drlg. sh. 8,370 ft.

Newton County

Houston Oil Co.-Republic Prod. Co. No. 1 Peavy-Moore, sec. 42, H.&T.C. Sur. Drlg. sh. 6,630 ft.

Refugio County

Wynne Drlg. Co. No. 1 Lambert-Power, Hewitson Sur. Abd.

Tyler County

McArthur & Nixon No. 1 Kountze, J. A. Hankins Sur. Abd. 3,851 ft.
Thompson Drlg. Co. and J. C. Bonham, Emily Smith Sur. R.U.

Victoria County

Wallace Sollores et al No. 1 Etta Terrell, J. M. Galban Sur. R.U.
Stanolind O. & G. Co. No. 1 Henderson & Pickering, E. Benavides Sur. Drlg. sh. 4,557 ft.

Washington County

K. D. Harrison and C. E. Starr No. 1 Charles and Wm. Ellerman, Wm. Bridges Lge. 13-in. csg. 290 ft.

Walker County

W. B. Gossage et al No. 1 Carey Ld. & Dev. Co., D. McDonald Sur. Drlg. sh. 2,200 ft.; no report.

S. W. TEXAS WILDCATS

Aransas County

Barnsdall Oil Co. No. 2 Kate Edwards, 330 ft. S line, Lot 85. 660 ft. SW No Wm. Lewis Sur. T.D. 9,785 ft.; set 7-in. csg. in sktrkd. hole 8,167 ft.; perf. with 17 holes 8,012-20 ft.; fld. after 55 min. on an 85-min. D.S.T.; muddy wtr. inc. 2 stands W. odor dist.; squeezer perf to retest.

Atascosa County

Brown & Bell No. 1 Atkins, 920-ac. tr., Sur. 3. Loc.

Bastrop County

J. W. Bibb No. 1 Lentz, F. Wilkenson Sur. Drlg. 219 ft.
Hantho-Nelson, Inc., No. 1 Litton, 71-ac. tr., Cedar Ck. Community. T.D. 2,112 ft.; flwd. oil and bridged; cleaned hole; drlg. ahead 2,135 ft.
Hantho-Nelson No. 2 Litton, 660 ft. W of No. 1, 75-ac. tr., Cedar Ck. Community. M.I.M.
Harvey & Henderson No. 1 Erhard, 175-ac. tr., Knight & White Surs. Spd.
R. Olson No. 1 Murchison, A. Litton Sur. Set csg. 1,828 ft.; T.D. 1,928 ft.; comp. on pump.; est. 100 B.P.D.
Texas Northern Oil Co. No. 1 Barton, J. Rogers Sur. Drlg. 2,927 ft.

Bell County

W. H. Vernor No. 1 McQueen, 9 mi. S of Belton. Drlg. sd. 1,921 ft.

Bexar County

Edna May Oil Co. No. 1 Cassin, F. Rodriguez Sur. Set 7-in. csg. 1,138 ft.; T.D. 1,372 ft.; comp. 20 B.P.D.
Oil Country Pipe & Supply Co. No. 1 Weber, Blk. 407. Drlg. 1,507 ft.

Brooks County

Mills Bennett Prod. Co. No. 1 Jones, 466 ft. N and E lines, Blk. 34. Sanchez Sur., La Rucia Gr. D.&A. 6,002 ft.
Standard Oil Co. of Texas No. 2 Mestina, Lse. 2. T.D. 2,400 ft.; cmtd. off gas; W.O.C.

Caldwell County

B. C. Armstrong No. 1 Bell, S. Seal Sur. Drlg. plugs 2,465 ft.
Chisum et al No. 1 Lane, 91-ac. tr., Lockhart Sur. Set csg. 45 ft.; cg. 1,793 ft.
Lanning & Coffield No. 1 Trammell, 150 ft. N line, 750 ft. E line lse., Guadalupe College Sur. Drlg. 1,421 ft.
Taylor Ref. Co. No. 1 Stacey, E. Tyson Sur. No. 21. Drlg. 1,116 ft.
L. H. Wilson No. 1 Wright, J. Roberts Sur. S.D. 1,900 ft.

Comal County

J. R. Yates No. 1 Heidrich, Heidrich ranch. S.D.; D.&A. 210 ft.

Dimmitt County

Teas & Maryland Corp. No. 1 McKnight, Blk. 13, sec. 23. Fsg. 1,170 ft.
H. F. Wilcox No. 2 Light ranch, 330 ft. S and W lines, sec. 29, I.&G.N.R.R. Sur., Blk. A. Drlg. sh. 5,506 ft.
H. F. Wilcox No. 3 Light ranch, 330 ft. N and W lines, sec. 113, I.&G.N.R.R. Sur., Blk. A. Drlg. 1,993 ft.

Duval County

Baltimore Drlg. Co. No. 1 Afflerbach, Sur. 342. Set csg. 1,180 ft.; sd.; S.O.; prep. test.
V. L. Blanchard No. 1 Benavides, Blk. 59, Sur. 238. D.S.T. 5,395-5,411 ft.; 18½-min. rec. 500 ft. oil, 220 ft. S.W.; W.P. 25 lbs.; perf. csg. 5,397-99½ ft.; w. 10 shots; clg. 95% oil, 5% W.W.; tr. no S.W.; T.P. 400 lbs.; C.P. 800 lbs.; comp. 150 B.P.D. on 5/32-in. ck.; perf. 5,395½-98 ft.
Henderson & Harvey No. 1-A Welder hrs., 100-ac. tr., sec. 102. Drlg. 247 ft.
Hougen, Tr., No. 1 Patton, Sur. 148. S.D. 3,004 ft.
Liberty Oil Co. No. 1 State, Sur. 216. T.D. 1,555 ft.; S.D.
Magnolia Pet. Co. No. 1 D.C.R.C., Sur. 259. Drlg. 1,713 ft.
Penn-Palangana Oil Co. No. 2 Schallert, Sur. 239. Drlg. 2,813 ft.
H. J. Porter No. 1 Sevier, Palo Blanquito Gr. Cg. hd. sd. 4,153 ft.
V. G. Schimmel No. 3 Hagist, Sur. 4. Cg. 1,513 ft.
Speed Oil Co. No. 1 Gruy Est., C NW¼, SE¼, Sur. 389. Drlg. sd. 2,434-50 ft.; S.O. & G. in pits; T.D. 2,850 ft.; to run Schlumberger and take side wall core.
Standard Oil Co. of Texas No. 4 Gruy, 330 ft. S and E lines, sec. 28, M. Gussett Sur. Drlg. 2,331 ft.
E. R. Thomas Est. No. 1 Pena, J. A. Garcia Sur. No. 8. Cg. 3,073 ft.
Tsesmalis & Shipman No. 2 Canales, C SE¼, Lot 75. Cg. 3,221 ft.
Woodley Pet. Co. No. 1 Parr, 100-ac. tr., San Andres Gr. Sd. 4,795-4,810 ft.; rocked in with 250 lbs. on tbg.; flwd. 6 B.P.H. P.L.O.; 15/64-in. ck.; C.P. 945 lbs.; T.P. 125 lbs.; installing pumping equip.

Edwards County

Dan Auld No. 1 Henderson, sec. 46, Blk. "E." M.I.M.
Amon G. Carter No. 1 Sweeten, SE¼, Blk. 2, Sur. 49. Drlg. 4,319 ft.

Frio County

Amerada Pet. Corp. No. 1 Harrigan, Flores Sur. 306. Lost hole T.D. 6,410 ft.; P.B. 5,720 ft.; D.S.T. 5,433-5,720 ft.; good blow 3 hrs.; treated with 3,000 gal. acd.; flwd. 25 min. and died; S.I. bldg. up pressure.
Pagenkopf & Jamieson No. 1 Houston Est., 2,254-ac. tr., J. Figuerroa Sur. Set surf. csg.; W.O.C.

Gonzales County

Canoe Creek Oil Co. No. 1 Botts. T.A. 200 ft.

Goliad County

Goliad Oil Co. No. 2 Cole, lot 33, Goliad Town. Tr. Sur. Set protective csg. 4,500 ft.; S.D. 5,687 ft.; W.O.O.

Guadalupe County

Mason Altgelt No. 1 Schubert. Esnaurizer Sur. T.D. 1,081 ft.; P.B. 822 ft. to acid.
Moon O. & G. Co. No. 1 Penshorn, Vincente Duran Sur. S.D. 704 ft.

Hidalgo County

Sulgrade Oil Co. No. 1 Mayer & Weill, Porc. 47. D.&A. 5,024 ft.
Y. & B. Oil Co. No. 1 Waite, Tr. 382, Los Jidos Gr. Drlg. 3,498 ft.

Jim Hogg County

Henry M. Brown No. 1 Gutierrez, sec. 22, Sh. 4, El Peyote Gr. S.D.; M.I. equip. 2,180 ft.
French Oil Corp. No. 1 Vela, Sur. 573. Drlg. 3,711 ft.

Jim Wells County

Magnolia Pet. Co. No. 7 Seeligson, 10,433 ac. tr., Los Jabonecillos Gr. Sd. S.G. 6,488-6,503 ft.; D.S.T. 6,488-6,503 ft.; rec. 60 ft. dist.; 1,000 lbs. W.P. 10-min.; took short core; well blew out and burned; S.I. and killed; cutting stuck D.S.

Karnes County

DeGraff & Reele No. 1 Cochran, McConnel Lge. Drlg. 1,474 ft.
Ivan Howard No. 1 Moczygemba, Erasmo Seguin 5, League Gr. Drlg. 712 ft.

Kendall County

Landon & Peffley No. 1 Seidensticker, Sur. 257, Chorcon Gr. Drlg. L. 516 ft.

Lee County

Jas. E. Pederson No. 1 Turner, David Hudson Sur. S.O.&G. 6,140-80 ft.; sdtrkd. at 4,600 ft. and drld. to 6,132 ft.; S.O.&G.; set csg. 6,021 ft.; acdzg. with 20-bbl. load; when opened well flwd. 20-bbl. head and went dead; S.I.; no C.P.

Live Oak County

Chas. Hanna et al No. 1 Wedding, 200-ac. tr., Haughy Sur. Drlg. sh. 616 ft.
R. P. Holland No. 1 Matkin, Tr. 2433, sec. 46, Floreck Sur. Sd.; S.O.&G. 1,485-89 ft. and 1,496-1,501 ft.; D.S.T. 15 min. 1,475-1,504 ft.; rec. 160 ft. oil and mud, approx. 75% oil; no W.P.; recmtg. csg. 1,512 ft.
Marzo Oil Co. No. 1 Alexander, Ayres Sur. Drk.
Petroleum Producers Co. No. 1 Alexander, Nichols ranch, Ayres Sur. M.I.M.
Ranco Oil Corp. No. 1 fee, 660 ft. NW and SW lines, Pointevent Sur. 3. M.I.M.
Unit Pet. Co. No. 1 Nichols, 1,535-ac. tr., S. Ryan Sur. Drlg. 336 ft.

Maverick County

Rio Dev. Co. No. 4 State Bank & Trust Co., Sur. 2. S.D. 457 ft.
Wellington Oil Co. No. 1 Chittam, 330 ft. N line, 2,310 ft. W line, sec. 129, Blk. 7. Drlg. 3,074 ft.

McMullen County

Adams & Lefevre No. 1 Selman, sec. 58. Set surf. csg.; stdg.
Alabama Minerals Corp. No. 1 Gordon, SW¼, Sur. 127. S.D. 2,537 ft.
Howell Oil Corp. No. 1 Martin, Sur. 213. D.&A. 3,510 ft.
W. L. Hinds No. 1 Rhodes, NE¼, NW¼ sec. 54. S.D. cor. T.D. 1,600 ft.
E. M. Jones No. 6 Ezzell, NW¼, SE¼, Ragland Sur. 20. D.&A. 2,491 ft.
Rowan & Nichols No. 1 Rhodes, NE¼ sec. 18, Seale & Morris Sur. T.D. 2,004 ft.; P.B. 1,700 ft.; drlg. sdtrkd. hole; 1,917 ft.
Pat Tinney No. 1 Rutherford, Blk. 17, Two Rivers Ranch Subd. S.D. cor. T.D. 305 ft.

Medina County

R. S. Bolling No. 1 McMenemy, Sur. 33½. M.I.R.
Kelfar Oil Co. No. 1 Briscoe, Schmidt Sur. No. 8. Cg. sh. 2,389 ft.

Nueces County

Camp Prod. Co. No. 1-A Wardner, sec. 18, Stratton Subd. Cg. 5,383 ft.
Sam E. Wilson No. 1 Herold, Lot 2, sec. 6, Bohemian Colony Subd., Enrique Villareal Sur. Drlg. sh. 6,491 ft.

San Patricio County

Argo Oil Corp. No. 1 Soehnge, 159.66-ac. tr., Blk. 11, Schleicher & Joseph Subd., Delgado Gr. Drlg. 3,763 ft.
Danray Oil Co. No. 1 Davis, Tr. 5, Wm Boyd Sur. Set csg. 7,117 ft.; W.O.C.
F. P. Schwab No. 1 Smith, Lot A-16, Cubage & Miller Subd., O'Connor ranch. Drlg. 1,006 ft.
Waterbury Oil Corp. No. 1 Davis, 107-ac. tr., G. Grober Sur. R.U.

Starr County

Calderoni-James-Foliette No. 1 Rodriguez Blk. 6, Sh. 56. Porc. 80. Set 4½-in. csg. 1,483 ft.; T.D. 1,511 ft.; P.B. T.D. 1,495 ft.; swbd. S.W.; S.D.
Gilcrease Oil Co. No. 1 Kelsey-Bass, 40-ac. tr., sec. 11, Porc. 77. Drlg. 3,216 ft.
Gilcrease Oil Co. No. 2 Kelsey-Bass, 4-ac. tr., sec. 11, Porc. 77. D.&A. 427 ft.
Henshaw Bros. & Davis No. 1 Garcia, Tr. 40, Porc. 89. R.U.
E. J. Pearl No. 1 de la Garza, Sur. 262. R.U.
Transwestern Oil Co. and Davenport No 3 Slick, sec. 527. T.D. S.W. sd. 5,374 ft.; stdg. S.I.; C.P. 2,500 lbs.; D.S. stuck.; clg. hole.

Webb County

Adams & LeFevre No. 1 Garcia, Blk. 27, Hughes Subd., Sur. 592. Set surf. csg.; W.O.C.
R. S. Bolling No. 1 Fort Worth Natl. Bank. Sur. 466. M.I.M.
Boone Bros. No. 1 Frost, Sur. 21. Drlg. 1,035 ft.
Eugene Garner No. 3 Saldivar, 150 ft. S and E lines, Blk. 12, Sur. 657. Drlg. 531 ft.
French Oil Corp. No. 3 Garcia, N½, Sur. 1,121. D.&A. 2,100 ft.
J. W. Magee No. 1 Garcia, Blk. 21, James Subd. Cg. 1,953 ft.
Paul Meaders No. 1 Garcia, Sur. 338. Loc.

Willacy County

Magnolia Pet. Co. No. 1 Armendiaz, Sh. 4, San Juan de Carricitos Sur. Drk.

Williamson County

Thos. W. Davis, Jr. No. 1 Colman & Davis, Boggus Sur. Drlg. sh. 554 ft.

Wilson County

Pat Higgins No. 1 Dickey, Rodriguez Sur. Drlg. 1,075 ft.
R. C. Stanley No. 2 Heirholzer, R. Salina Sur. Oil sd. 1,025-30 ft.; T.A. 1,065 ft.

Zapata County

H. Fansler No. 2 Gopher Trust Est., Blk. 12, Sh. 8, Sur. 6, Borrego Gr. D.&A. 2,233 ft.
Eugene Mays No. 1 Flores, Blk. 198, Doty Subd., Charco Redondo Gr. Drlg. 731 ft.
United Prod. Co. No. 4 Jennings, San Antonio de Mira Flores Gr. D.&A. 2,007 ft.

Zavalla County

G. Hyson No. 1 Byrd, 5,000-ac. tr., sec. 130. Loc.

S. W. TEXAS PROVEN

McCampbell—Aransas-San Patricio Counties

Atlantic Ref. Co. No. 5-C McCampbell, Lot 12, Blk. 39. Perf. 7,099-7,103 ft.; comp.; est. 97 B.P.D. on 9/64-in. ck.; T.D. 7,120 ft.
Atlantic Ref. Co. No. 7-C McCampbell, Lot 1, Blk. 41. Cg. 7,071 ft.
Atlantic Ref. Co. No. 1-F McCampbell, Blk. 28. D.S. stuck at 3,400 ft.
Atlantic Ref. Co. No. 3-B Murray, Lot 12, Blk. 12. Cg. sdy. sh. 7,017 ft.
Atlantic Ref. Co. No. 1-C Murray, Lot 6, Blk. 38. Sd. 7,091-7,101 ft. and 7,111-18 ft.; set csg. 7,138 ft.; perf. 6,532-38 ft.; P.B. to 6,540 ft.; W.O.C.
Atlantic Ref. Co. No. 1-B Porterfield, Lot 8, Blk. 10. Cg. 7,082 ft.
Atlantic Ref. Co. No. 3-B Porterfield, Lot 8, Blk. 11. R.U.
Buckingham Oil Co. No. 2-A McCampbell, sec. 42. O.W.W.O.; O.T.D. 6,549 ft.
Buckingham Oil Co. No. 5-A McCampbell, Lot 4, Blk. 39. O. sd. 6,544-48 ft.; reperf. csg. 6,540-42 ft.
Buckingham Oil Co. No. 12-A McCampbell, Blk. 42. Perf. 7,095-7,119 ft.; S.W. & O.; plgd. to reperf.
Buckingham Oil Co. No. 1-B McCampbell, Lots 13 and 14, Blk. 40. O.W.W.O.; old T.D. 6,557 ft.; fsg.
Buckingham Oil Co. No. 1-C McCampbell, 33.8-ac. tr., Blk. 27. T.D. 7,150 ft.; prep. rework.
Graham & Buckingham Oil Co. No. 1-D Porterfield, Lot 11, Blk. 9. Cg. 7,056 ft.
Landreth Prod. Co. No. 5-A McCampbell, Lot 4, Blk. 39. T.D. 7,131 ft.; set csg. 7,120 ft.; comp.; est. 75 B.P.D., ¼-in. ck.
Landreth Prod. Co. No. 6-A McCampbell, Lot 1, Blk. 40. Drlg. 2,016 ft.
Neill & Peterson No. 1-A McCampbell, Lot 1, Blk. 43. Drlg. 6,562 ft.
Peach Tree Oil Co. No. 2 McCampbell. Drlg. 6,557 ft.
Peach Tree Oil Co. No. 2 Porterfield, Lots 15 and 16, Blk. 10. Set csg. 1,204 ft.; W.O.C.
Rutherford Oil Corp. No. 2 Scrivener, Lot 16, Blk. 11. R.U.
Rutherford Oil Corp. No. 1 Yarbrough, Lot 2, Blk. 37. Perf. 7,105-07 ft. and 7,121-23 ft.
Shasta Oil Co. No. 3 Davis, Lot 14, Blk. 9. Perf. 7,128-32 ft.; comp.; 250 B.P.D. on ¼-in. ck.; sd. 3,056-71 ft.

Pettus—Bee County

Transwestern Oil Co. No. 9 Ray, 240-ac. tr., Kerr Sur. D.&A. 4,360 ft.

Plummer—Bee County

W. C. McBride No. 2 Schneider, 600 ft. N of No. 2, Sur. 3. Sd. 3,030-69 ft.; recmtd. csg.; perf. 3,062-65 ft.; comp. 73 B.P.D. on ¼-in. ck.; sd. 3,056-71 ft.

West Tuleta—Bee County

Blanco Oil Co. and Buchanan No. 3-B Perez, SE¼, sec. 9, Ragley Subd., Uranga Gr. Drlg. 3,593 ft.
Salt Dome Oil Co. No. 3 Tuleta Merchantile Co., SW¼, sec. 10, Wragley Subd., Uranga Gr. Jetting; T.D. 3,079 ft.; tstg.

Alta Mesa—Brooks County

Standard of Texas No. 5 Mestina, Lease No. 1. 7-in. csg. set 3,220 ft.; T.D. 5,505 ft.; perf. 4,513-20 ft.; flwd. 280 B.P.D. on ¼-in. ck.; tstg.
Standard Oil Co. of Tex. No. 9 Mestina Lse. No. 1, La Mestina and Gonzalena Sur. M.I. Rig.

Alta Verde—Brooks County

Bishop & Woods No. 1 Maupin, Sur. 311. Drlg. sh. 1,893 ft.
Dick Young No. 3 Singer, Blk. 12, Sur. 312 (W.O.). T.D. 1,810 ft.; S.D.
Star Dev. Co. No. 1 Singer, Blk. 8, Sur. 436. O.W.W.O.; old T.D. 948 ft.; perf. 801-18 ft.; set 5⅛-in. csg. 856 ft.; tstd. gas; W.O.O.

Branyon—Caldwell County

Adams & Richards No. 4 Flowers, J. Neill Sur. R.U.
Bertrand et al No. 1 Magee, Neill Sur. Comp. T.C. 2,004 ft.; T.D. 2,236 ft.
Blundell Oil Co. No. 1 Blundell, 102.2-ac. tr., Jarman Sur. D.&A. 2,287 ft.
Cargill et al No. 1 Patton, J. R. Miller Sur. T.D. ch. 2,082 ft.; T.C. 1,910 ft.; set 6⅝-in. csg. 1,900 ft.; W.O.C.
Blundell Oil Co. No. 2 fee, Jarman Sur. R.U.
Judge Bros. Co. No. 1 Medlock, Neill Sur. Drlg. plugs; T.D. 2,246 ft.; comp. 60 B.P.D.
Lincoln Pet. Co. No. 8 Branyon, J. R. Miller Sur. Drlg. sh. 1,656 ft.
Martell Pet. Co. No. 2 Clark, J. R. Miller Sur. Drlg. 1,815 ft.
Martell Pet. Co. No. 1 Young, J. R. Miller Sur. T.D. 2,342 ft.; pmpg. oil and sulf. to P.B. and perf.
Taylor Ref. Co. No. 6-B Branyon, D. Cooper Sur. R.U.
Universal O. & G. Co. No. 2 Calliham, Miller Sur. Drlg. sh. 519 ft.
Vaughey No. 3 Clark, J. R. Miller Sur. Drlg. 557 ft.

Buchanan—Caldwell County

Fred J. Adams No. 2 Dale, Wm. Spillars Sur. R.U.
Carter et al No. 2 Brown, Cannon Sur. Set csg. 1,990 ft.; W.O.C.; T.D. 2,000 ft.
Edwill Oil Co. No. 3 Brown, Cannon Sur. T.D. 2,155 ft.; set csg. 2,117 ft.; W.O.C.
McAlester Fuel Co. No. 1 Miears, Cannon Sur. Rng. tbg. 2,250 ft.; comp. 110 B.P.D.; set 5½-in. csg. 1,960 ft.
Potter P. L. Co. No. 1 Medlin, Cannon Sur. T.D. 1,927 ft.; set csg. 1,910 ft.; W.O.C.
L. G. Priest No. 1 Chambless, Goodman Sur. T.D. Edw. 2,645 ft.; swbg. S.O.

Burleti Wells—Caldwell County

Taylor Ref. Co. No. 1 Punch, Guad. College Sur. Drlg. 365 ft.

Dale—Caldwell County

Ogden & Reed No. 2 Lackey, S. Damon Sur. Drlg. Serp. 1,916 ft.

Dunlap—Caldwell County

R. E. Fair No. 1 Dunlap, Seal Sur. Cg. sh. 2,317 ft.
Padua Pet. Co. No. 1 Cooper, S. Seal Sur. T.D. 2,650 ft.; comp.; 10 B.P.D. pmpg.
Chas. Schreiner No. 1 Moody, Seal Sur. S.D.; T.D. 2,200 ft.

Salt Flat—Caldwell County

Chiquita Oil Co. No. 5 Hickman, G. Hinds Sur. Set csg. 2,639 ft.; W.O.C.
Pummel & Brady No. 1 Jackson, S. Morris Sur. Spudded.

Benavides—Duval County

Argo Oil Co. No. 7 Carrillo, Blk. 9. Set csg. at T.D. 4,794 ft.; comp.; 153 B.P.D. on ¼-in. ck.
Argo Oil Co. No. 8 Carillo, sec. 9, Sweden Farm Lots. R.U.
Arkansas Fuel Oil Co. No. 5 Rossi, Lot 25, Sweden Farm Trs. Set 7-in. csg. at 4,780 ft.; T.D.
Benedum & Trees Oil Co. No. 6 Puig, San Andres Gr. Drlg. 3,786 ft.
M. Benzaquin No. 1 Flores, sec. 9, Sweden Farm Lots. Drlg. 277 ft.
Bridwell Oil Co. No. 2 Anciro, 152-ac. tr., Lot 19. T.D. 4,779 ft.; comp.; 120 B.P.D. on ¼-in. ck.
Bridwell Oil Co. No. 3 Anciro, 152-ac. tr., Lot 19, Sweden Farm Lots. M.I.M.
Frank Gravis Oil Co. No. 3-A Puig, 100-ac. tr., San Andres Gr. Comp. 138.5 B.P.D.; sd. 4,810-19 ft.; T.D. 4,796 ft.
Frank Gravis Oil Co. No. 4-A Puig, 100-ac. tr., San Andres Gr. Set surf. csg. 525 ft.; W.O.C.
Gravis & Doran No. 5 Puig, 200-ac. tr., San Andres Gr. Set csg. 4,799 ft.; W. O.C.
Hiawatha Oil Co. No. 2 Parr, 330 ft. N and W lines, lse., San Andres Gr. No. 24. Comp. 120 B.P.D.; sd. 4,727-37 ft.
Hiawatha Oil Co. No. 3 Parr, San Andres Gr. Set surf. csg. 968 ft.; W.O.C.
Navarro Oil Co. No. 2 Owens, Blk. 19, Sweden Subd. Set csg. 4,765 ft.; W.O.C.
Nordan & Morris No. 1 West, 50-ac. tr., Santos Flores Gr. Perf. 4,770-74 ft.; comp.
Parr & Delaney No. 12 Valleo, 150-ac. tr., Lot 24, San Andres Gr. Set csg. 4,794 ft.; T.D. 4,801 ft.; washing.
Reynosa Oil Co. No. 3 Wilson, Santos Flores Gr. Perf. 4,784-88 ft.; comp. 120 B.P.D., ⅛-in. ck.; T.D. 4,799 ft.
Russ Pet. Co. No. 5 Farias, 160-ac. tr., sec. 25, Santos Flores Gr. T.D. 4,825 ft.; comp. 216 B.P.D. on ¼-in. ck.; set 7-in. csg. 4,817 ft.
Russ Pet. Co. No. 6 Farias, Blk. 9, Sweden Farm Lots. Drlg. 3,189 ft.
Standard Oil Co. of Kans. No. 6 Parr, 80-ac. tr., San Andres Gr. Skidding on.
Standard Oil Co. of Kansas No. 7 Parr, 80-ac. tr., San Andres Gr. T.D. 4,750 ft.; sd. 4,721-50 ft.; comp.; no gauge.
Standard Oil Co. of Kansas No. 7 Rossi, Santos Flores Gr. T. sd. 4,781 ft.; T.D. 4,792 ft.; W.O.C.; csg. 4,780 ft.
Standard Oil Co. of Kansas No. 4 Walstad, sec. 9, Sweden Farm Trs. Comp. 168 B.P.D.; sd. 4,764-88 ft.
Standard Oil Co. of Kans. No. 2 Southland Life, sec. 2, Santos Flores Gr. Drlg. 4,617 ft.

Charamousca—Duval County

N. V. Duncan No. 15 Worden-Draught, Sur. 151. Cg. 1,516 ft.

Driscoll—Duval County

Continental Oil Co. No. 18-A Sevier, Sur. 450. Set csg. 3,351 ft.; sd. 3,320-49 ft.

Hoffman—Duval County

Bridwell Oil Co. No. 5 Green, Sur. 118. Oil sd. 2,715-18 ft.; set 7-in. csg. at T.D. 2,718 ft.; W.O.C.
Cox & Hamon No. 20 Green, Sur. 118. T.D. 293 ft.; m. off rig.
Cox & Hamon No. 25 Green, Sur. 118. Sd. 2,728-31 ft.; set 7-in. csg. 2,729 ft.; W. O.C.
Cox & Hamon No. 6 Robles, Sur. 68. Sd. 2,715-18 ft.; jetted S.W.; squeeze job.
Duval Oil Corp. No. 9-A Hoffman, Sur. 118. Oil sd. 2,734-35½ ft.; set 7-in. csg. 2,732 ft.; tstg.

Kohler—Duval County

Bunn Bros. & Coates No. 6-B Peters, Sur. 29. Sd. 1,835-47 ft.; set csg. 1,834 ft.; W.O.C.
Cox & Hamon No. 1 Gruy, Sur. 157. Set csg. 1,633 ft.; comp. 29.3 B.P.D. on ½-in. ck.; T.D. 1,840 ft.
Cox & Hamon No. 2 Gruy, Sur. 157. Sd. 1,845-48 ft.; tstg.

Labbe—Duval County

Humble O. & R. Co. No. 8 Roos, sec. 119. T.D. 2,816 ft.; sd. 2,811-17 ft.; comp. 21.8 B.P.D.
Humble O. & R. Co. No. 9 Roos, sec. 119. Swbg.; T.D. 2,809 ft.

Lundell—Duval County

Govt. Wells Oil Co. No. 7 Lundell, sec. 140. R.U.

Palangana—Duval County

Penn Palangana Oil Co. No. 1 C K Gravis Sur. 250. Fsg. 6,165 ft.

Piedra Lumbre—Duval County

Magnolia Pet. Co. No. 6 D.C.R.C., Sur. 203. Set surf. csg.; W.O.C.

Seven Sisters—Duval County

S. and D. Daube No. 36 Campos, Sur. 224. T.D. 2,734 ft.; W.O. pmp.
S. & D. Daube No. 38 Campos, Sur. 224. Tstg.; T.D. 2,715 ft.; set 7-in. csg. 2,654 ft.
Humble O. & R. Co. No. 23 Dowdy, Sur. 272. M.I. rig.
S. & D. Daube No. 37 Campos, Sur. 224. T.D. 2,730½ ft.; W.O. pmp.

Pan American Prod. Co. No. 7-A Welder, Sur. 381. Sd. 2,528-36 ft.; set csg. 2,528 ft.; comp. 360 B.P.D. on ⅝-in. ck.
Rudco O. & G. Co. No. 1 Ellis, 160-ac. tr., Sur. 308. M.I.M.
Sun Oil Co. No. 2 Rodriguez, sec. 222. Comp. 96 B.P.D. on ¼-in. ck.; sd. 2,800-18½ ft.; 7-in. at 2,800 ft.

Sweden—Duval County

Hiawatha Oil Co. No. 1 Herberger, Sur. 14, Ball Subd., Agua Poquita Gr. Sidetracking 1,800 ft.; T.D. 5,896 ft.; drlg. S.T. hole 4,047 ft.

Thomas-Lockhart—Duval County

Lockhart Bros. No. 2 Parr, Sur. 277. Sd. 4,650-82 ft.

Pearsall—Frio County

Amerada Pet. Corp. No. 8 Halff & Oppenheimer, S. A. Ditch Sur. 1,104 (W.O.). Set 7-in. protective csg. 10,341 ft.; drlg. 10,569 ft.
Amerada Pet. Corp. No. 4 Smith, Mason Sur. 322. Drlg. ch. 5,316 ft.

Darst Creek Extn.—Guadalupe County

Bayou River Oil Co. No. 1 State, J. K. Davis Sur. Dr. sh. 1,618 ft.
M. E. Brooks No. 1 Applin, Hodges Sur. Drlg. 1,823 ft.
Diamond Halff Oil Co. No. 2 Bibbs, J. Robinson Sur. T.D. 2,517 ft.; comp. 420 B.P.D. on pump.
Kenedy & Crowley No. 1 Anderson, J. R. Robinson Sur. Drlg. sh. 2,213 ft.
Magnolia Pet. Co. No. 6 Knodel, Darst Sur. Set csg. 2,581 ft.; comp. 128 B.P.D. pmpg.
Riddle Oil Co. No. 2 Williams, DeWitt Sur. No. 13. S.D. 1,960 ft.
Texas Co. No. 8 Anderson, J. R. Robinson Sur. Set csg. 2,537 ft.; T.D. 2,547 ft.; comp. 50 B.P.D.
Texas Co. No. 8-A Knoblock, Joel Robinson Sur. R.U.

Luling—Guadalupe-Caldwell Counties

Bruce Albright No. 2 Cosey, J. Henry Sur. Drk.
Tom Graham No. 1 Pearnor, R. Hall Sur. Drk.
Magnolia Pet. Co. No. 16 Tiller, J. Henry Sur. R.U.
Millican & Norman No. 1 Lampkin, J. Henry Sur. T.C. 1,714 ft.; T.D. 2,128 ft.; set csg. 2,127 ft.; R.U. pump.
Millican & Norman No. 2 Lampkin, J. Henry Sur. Drlg. plugs 46 ft.
Potter P. L. Co. No. 1 Cartwright, J. Henry Sur. R.U.
Rio Bravo Oil Co. No. 16 Merriweather, J. Henry Sur. Set 7-in. csg. 2,101 ft.; comp. 49 B.P.D. on pump.
Spokane O. & G. Co. No. 1 Hibbits, J. Henry Sur. S.D. 410 ft.
Taylor Ref. Co. No. 1 Harris, Cottle Sur. T.D. Edw. 2,090 ft.; R.U. to pmp.

Manford—Guadalupe County

Atlantic Oil Inv. Corp. and Blackmar No. 1 Huff, Hodes Sur. T.D. 2,504 ft.; P.B. 2,404 ft.; comp. 20 B.P.D. on pump.
Don E. Blackmar et al No. 1 Mackey Hodges Sur. T.A. 2,657 ft.

Staples—Guadalupe County

W. W. Lincoln No. 1 Sherrill, G. Allen Sur. Drlg. 217 ft.

Zoboroski—Guadalupe County

Felmont Corp. No. 4 Scheeneman, G. DeWitt Sur. Drlg. 73 ft.
Forest Dev. Corp. No. 6 Hoffman, DeWitt Sur. Set csg. 2,284 ft.; T.D. 2,288 ft.; stdg.
Forest Dev. Corp. No. 1 Krueger, Branch Sur. Washing down; T.D. 2,250 ft.; P.B. depth 2,116 ft.; comp. 20 B.P.D. on pump.
Skivereen Oil Co. No. 1 State of Texas, Guad. River bed, 50 ft. S of No. 1. Tstg.; T.D. 2,240 ft.; pmp. dry; stdg.

LaBlanca—Hidalgo County

Dee Davenport No. 1 Hidalgo Wtr. & Imp. Dist., Lot 16, Engleman Subd., Smith Sur. 262. Drlg. sh. 1,556 ft.
Dee Davenport No. 2 Swallow, Clyde Fennis Ld. Co. Sur. Drlg. sh. 5,316 ft.
Gulf States Oil Co. No. 2 Delta Orchards, Lot 3, Blk. 94, Engleman, Jr. Sur. Resubd. Drlg. sh. 277 ft.

Samfordyce—Hidalgo and Starr Counties

H. J. Porter No. 1 Flores, Tr. 250, Porc. 38. M.I.M.

Alworth—Jim Hogg County

French Oil Corp. No. 5 Vela, Blk. 14, Sur. 39. R.U.

Sandia—Jim Wells County

Joe Walsh et al No. 2 Wade, Lot 2, Blk. "C," Bode Subd. Set csg. 300 ft.; S.D.

North Pettus—Karnes County

Magnolia Pet. Co. No. 17 Porter, B.&B. Sur. 23. Completing; T.D. 3,708 ft.
Magnolia Pet. Co. No. 18 Porter Sur. 23. Sd. 3,692-3,703 ft.; R.U. to pmp.

South Burnell—Karnes County

Dirks Bros. Co. No. 4 Ruhman, Johnson Sur. Spdg.
Dirks Bros. No. 3 Ruhman, 200-ac. tr., J. Johnson Sur. Sd. 3,588-3,612 ft.; comp. 275 B.P.D.; T.D. 3,620 ft.
Luling O. & G. Co. No. 3 Boyce, Porter Sur. Oil sd. 3,620-41 ft.; set 7-in. csg. 3,620 ft.; comp. 220 B.P.D.
Luling O. & G. Co. No. 4 Boyce, W. J. Porter Sur. Spdg.
Pettus Oil Ref. Co. No. 2 McKinney, 589-ac. tr., Ballard Sur. Sd. 3,631-53 ft.; comp. 240 B.P.D. on ⅛-in. ck.

Kingsville—Kleberg County

Harry Edwards No. 1 Noack, Lot 4, Blk. 50, Subd. of town of Uriah. T.D. 3,535 ft.; S.D.

Fort Merrill—Live Oak County

Mills Bennett Prod. Co. No. 2 Watson & Shipp, Pablo Salinas Sur. R.U.

Ezzell—McMullen County

Edwin M. Jones No. 12 Ezzell, sec. 23, H. Russell Sur. Set csg. 1,530 ft.; stdg.
Edwin M. Jones No. 13 Ezzell, Russell Sur. 23. Sd. 1,498-1,503½ ft.; set csg. 1,510 ft.; stdg.
E. M. Jones No. 14 Ezzell, Russell Sur. 23. Sd. 1,520-23 ft.; set csg. 1,540 ft.; W.O.C.
Edwin M. Jones No. 16 Ezzell, Russell Sur. 23. Oil sd. 1,517-22 ft.; set csg. 1,543 ft.; W.O.C.

Loma Alta—McMullen County

Humble O. & R. Co. No. 2 Atkinson, M. J. Deen Sur. 13. Drlg. 2,200 ft.

South Calliham—McMullen County

Bill Howard No. 9 Claunch, Hely Sur. R.U.

Loma Alta—McMullen County

J. T. Lanier No. 1 Hagist, SE¼, N½, Sur. 481. S.D. 2,513 ft.

Agua Dulce—Nueces County

Heep Oil Corp. No. 1 Purl, 440-ac. tr., Subd. No. 2. R.U.
Texon Drlg. Co. No. 2 Elliff, 3,054-ac. tr., Longorio Sur. Drlg. 6,216 ft.
United Prod. Co. No. 3-A Rivers, sec. 9, Peters Subd. Washing; T.D. 8,540 ft.
United Prod. Co. No. 1 Schroeder, sec. 87, Paul Subd., Driscoll ranch. Drlg. shly. sd. 6,854 ft.

Clara Driscoll—Nueces County

O. W. Killam No. 3 Ellick, 86-ac. tr., Sur. 109. Set 7-in. csg. 3,934 ft.; perf. 3,905-10 ft.; washing.
Mid-Continent Pet. Corp. No. 3 Sevier, R. Russell Sur. Oil sd. 3,793-3,812 ft.; set 7-in. csg. 3,808 ft.; clg. in pits.

Flour Bluff—Nueces County

Humble O. & R. Co. et al No. 1 Brett, Lot 1, Blk. 48. Tstg. 6,665 ft.
Humble O. & R. Co. et al No. 5 Cordz, Lot 16, Blk. 45. Tstg. 6,663 ft.
Humble O. & R. Co. et al No. 1 Downey. R.U.
Humble O. & R. Co. et al No. 1 Graham, Lot 15, sec. 41. Fig. in pits 6,656 ft.
Humble O. & R. Co. No. 3-A Ritter, Lot 23, Blk. 55. D.&A. 6,689 ft.
Humble O. & R. Co. et al No. 4 Roberdeau, Lot 5, Blk. 49. Cg. sd. and sh. 6,662 ft.
Humble O. & R. Co. et al No. 2 Swan, Lot 2, Blk. 54. Drlg. sh. 2,275 ft.
Humble O. & R. Co. et al No. 2-B Thompson, Lot 8. Blk. 55. Drlg. sh. 6,155 ft.

London—Nueces County

Wellington Oil Co. and Seaboard Oil Corp. No. 1-B Lehman, NW¼, SE¼, sec. 25. T.D. 5,000 ft.; S.D.

Luby—Nueces County

Seaboard Oil Corp. No. 2 Luby, Blk. 4. Sh. 2. D.S.T. 5,043-60 ft.; rec. 560 ft. oil at W.P. 162 lbs.
Seaboard Oil Corp. No. 1 Schaeffer, Blk 3, Sh. 2, Luby Subd. Set csg. at T.D. 7,310 ft.; sd. 7,290-7,310 ft.
Stanolind O. & G. Co. No. 2 McCann, 565.3-ac. tr. Spdg.

Saxet Heights—Nueces County

Wm. Brady No. 2 Whalen, Villareal Sur. W.O.C. 445 ft.; surf. csg.
W. H. Harrison No. 3 McConnell, Blk. 5, Oak Park Addn. Set surf. csg. 307 ft.; stdg.

Saxet—Nueces County

R. B. Bryant No. 1 Frank, 50-ac. tr., Sur 500. M.I.M.
Bryant & Howell No. 10 Frank, 40-ac. tr Sur. 500. Set 5-in. csg. 6,988 ft.; perf. 6,730-40 ft.; squeezed to retest.
Bentex Oil Co. No. 3 Harmon, Sur. 414 Set csg. at T.D. 5,796 ft.; comp. 121 B. P.D. on 5/32-in. ck.; perf. 5,776½-81 ft.
Bryant & Howell No. 4 Plachy, Sur. 2A Sd. 4,161-75 ft.; set 5½-in. csg. 4,250 ft.; W.O.C.
Donico Prod. Co. No. 8 Donigan, 80-ac. tr., sec. 7, Rge. 6. Cg. 4,562 ft.
J. E. Freeman No. 1 Scott, Sur. 500. Cg. 5,742 ft.
Greta Oil Corp. No. 2 Bliss, 25-ac. tr., Sur. 406. Drlg. hd. sd. 6,857 ft.
Greta Oil Co. No. 5 Humphries, Stevens Sur. Drlg. 5,416 ft.
Hiawatha Oil Co. No. 13 Hutchins-Stillwell, Blk. 30, Sheppard Farm Lots. Sd. 6,888-6,919 ft.; set csg.; W.O.C.
Houston Oil Co. No. 5-A Harrell, Sheppard Farm Lots. Drlg. sh. and L. 205 ft.
Houston Oil Co. No. 6 Harrell, Blk 13, Sheppard Farm Lots. P. B. 4,726 ft.; comp. 79 B.P.D. on 9/64-in. ck.; perf. 4,721-25 ft.; T.D. 4,725 ft.
Houston Oil Co. No. 8-A Harrell, Lot 24, Sheppard Farm Lots. Drlg. sh. 1,216 ft.
Houston Oil Co. No. 4 Isensee, Lot 2, Sheppard Farm Lots. Drlg. sh. and L. 4,022 ft.
Houston Oil Co. No. 4 Hunter, 75-ac. tr., sec. 8, Rge. 5. R.U.
Houston Oil Co. No. 3 Isensee, Blk. 11, Sheppard Farm Lots. T.D. 4,868 ft.; comp. 114 B.P.D.; open tbg.
H. H. Howell No. 6 Hutchins, 80-ac. tr., Sur. 416. Cg. 6,255 ft.
Kepley Prod. Co. No. 7 Donigan, 100-ac. tr., sec. 7, Rge. 5. Set csg. 1,003 ft.; W.O.C.
Maryland Corp. and Renwar Oil Corp. No. 2 Stillwell-Sagarino, Sur. 500. Drlg. 3,786 ft.
Maryland Corp. and Renwar Oil Co. No. 2-B Morgan, Sur. 415. S.D. 3,702 ft.
Morgan & Chapman Minerals Corp. No. 9 Morgan-Clark, NE¼, Sur. 405. T.D. 6,945 ft.; sdtrkd. 4,622 ft.; drlg. S.T. hole 5,922 ft.
Phillips Pet. Co. No. 7 Hutchins, 60-ac. tr., Sheppard Farm Lots 29. Set 7-in. csg. 6,776 ft.; T.D. 6,997 ft.; perf. 6,737-40 ft.; comp. 85 B.P.D.
Phillips Pet. Co. No. 7 Morgan, S½, sec. 405. Set surf. csg.; W.O.C.
Republic Nat. Gas Co. No. 21 Dunn, Blk. 37, Sheppard Farm Lots. Drlg. 4,352 ft.
Richardson Pet. Co. No. 22 Cain & Secrist, Blk. 23, Russell Farm Lots. Sd. 4,547-52 ft.; set csg. 4,543 ft.; comp. 204 B.P.D., ¼-in. ck.
Richardson Pet. Co. No. 3 Harrell, Blk. 33, Sheppard Farm Lots. Drlg. 215 ft.
Richardson Pet. Co. No. 6 Hoolscher, Blk. 22, Russell Farm Lots. Drlg. 1,215 ft.
Richardson Pet. Co. No. 6 Perkins-La-Gasse, 20-ac. tr., Sheppard Farm Lot 22. Perf. 5,805-15 ft.; clg. in pits.
Richardson Pet. Co. No. 12 Quiros, Sheppard Farm Lots No. 26. Oil sd. 6,908-28 ft.; set 7-in. at T.D. 6,950 ft.; comp. 90 B.P.D. dist. on 5/32-in. ck.; perf. 6,700-05 ft. and 6,720-25 ft.
Richardson Pet. Co. No. 11 Sedwick, 184-ac. tr., Dunn Sur. 312. Drlg. 4,882 ft.
Ben F. Smith No. 1 Ocker, Villareal Sur. T.D. 4,879 ft.; sh.; rmg.
Southern Minerals Corp. No. 21 Bliss, Sur. 404. Blew out while attempting to set 1,114 ft. surf. csg.; blowing wild.
Southern Minerals Corp. No. 5 Elder, 60-ac. tr., Sur. 311. T.D. 6,741 ft.; comp. 107.2 B.P.D. on 7/32-in. ck.
Southern Minerals Corp. No. 9 Ocker, 205-ac. tr. Cg. 4,402 ft.
Texon Drlg. Co. No. 1 Janosek, 32.74-ac. tr., Sur. 25. R.U.
Texon Drlg. Co. No. 6 Scoggin, 50-ac. tr., Sur. 315. Perf. csg. 4,547-55 ft.; rec. S.W.; comp. 163.7 B.P.D., 5/32-in. ck.
Warner Quinlan Co. of Tex. No. 5 Isensee, Blk. 1, Sheppard Farm Lots. Set csg. 4,894 ft.; T.D. 4,904 ft.; perf. 4,851-62 ft.; jetting.

Sullivan—Nueces County

Lockhart et al No. 1 O. Purl, Lot 2, sec. 7, Ross Peters Subd. No. 2. Sd. 7,032-52 ft.; P.B. and sdtrkd.; drlg. sdtrkd. hole 6,737 ft.

Midway—San Patricio County

Phillips Pet. Co. No. 3 Ivey, sec. "K," Pauls Subd. Set csg. 5,360 ft.; perf.
Phillips Pet. Co. No. 3 Schmidt, sec. 81. Cg. 5,347 ft.
Sun Oil Co. No. 1 Coggin, sec. 82. Oil sd. 5,334-38 ft.; set 7-in. csg. 5,333 ft.; comp. 35 B.P.D. on 9/64-in. ck.; sd. 5,338-39 ft.

Plymouth—San Patricio County

Plymouth Oil Co. No. 81-C Welder, sec. 70. Sd. 5,454-60 ft. and 5,484-91 ft.; set 7⅝-in. csg. 5,491 ft.; W.O.C.
Plymouth Oil Co. No. 82-C Welder, sec. 70. Spdg.
Sun Oil Co. No. 3 Roundtree, sec. 34, Lot 4. Perf. 5,636-37 ft.; pmpd. 30 bbls. oil, 50 bbls. S.W.; sanded up; reworking.

Taft Field—San Patricio County

Humble O. & R. Co. No. 29 Mayo, 32-ac. tr., Ottman Sur. Set csg.; oil sd. 3,983 ft.; completing.

Barbacoas—Starr County

K. E. Merren No. 1-A S.C.C.C., Blk. 34, Lambeth Subd., Porc. 89. Set csg. at T.D. 5,640 ft.; sd. 5,470-91 ft.; C.O.

Ricaby—Starr County

Barnett et al No. 1 Valadez, Porc. 84. Sd. 1,890-96 ft.; tstg.
Dean Bros. No. 1 Valadez, Porc. 84. Sd. 1,863-72 ft.; set 5½-in. csg. 1,872 ft.; to perf. and test.
Dodd, Tr., No. 5 Wood Est., Porc. 84. Set csg. 1,772 ft.; W.O.C.
J.W. Edwards No. 1 Vela, Porc. 84. Drlg. 276 ft.
Sioux Oil Co. No. 5 Ricaby, M. Martinez Sur., Porc. 83. D.&A. 1,809 ft.

Cole—Webb County

O. W. Killam No. 56 Benavides, Blk. 17, sec. 8. R.U.
Magnolia Pet. Co. No. 3 Valdez, Valdez Sur., Blk. 8. Drlg. 2,107 ft.

Killam—Webb County

C. H. Bailey No. 3 Garcia, Owens Sur. 786. T.D. 2,074 ft. (cor.); comp. 100 B.P.D.
Hamill & Smith No. 1 Garcia, 80-ac. tr., Sur. 337. Sd. 1,902-12 ft.; comp.
Hamill & Smith No. 2 Garcia, 80-ac. tr., Sur. 337. R.U.
O. W. Killam No. 1 Garcia-Villareal, E½, SE¼, Sur. 337. Cg. 1,979 ft.
W. and R. Killam No. 1 Garcia, Villareal Sur. 337. Comp. gasser; perf. 1,970-77 ft.
Ed Mays No. 1 Dickens, Blk. 11, Sur. 1007. Sd. 1,991-93 ft.; set 5½-in. csg. 1,987 ft.; comp. 30 B.P.D.
Ed Mays No. 2 Dickens, Blk. 11, Sur. 1,107. Sd. 1,983-98 ft.; W.O.C.
Mills Bennett Prod. Co. No. 1 Despain, 40-ac. tr. Set csg. 1,999 ft.; W.O.C.
Mills Bennett Prod. Co. No. 4 Garcia, 80-ac. tr., Sur. 786. T.D. 2,000 ft.; comp.

Lopez—Webb-Duval Counties

C. H. Andrus No. 1 Billings, Sur. 10. R.U.

O'Hern—Webb County

Magnolia Pet. Co. No. 32 Benavides, sec. 13, Sur. 174. Drlg. 2,776 ft.
Sun Oil Co. No. 12 Benavides, Blk. 509. Drlg. 2,607 ft.

Oilton—Webb County

Bridwell Oil Co. No. 2 Martin, Sur. 2167. Sd. 1,922-27 ft.; set csg.; W.O.C.
Gypsy Oil Co. No. 4 Martin, Sur. 458. Sd.

1,908-15 ft.; T.D. 2,035 ft.; comp. 93 B.P.D. and gas.
Gypsy Oil Co. No. 5 Martin, Sur. 458. T.D. 1,905 ft.; comp. 260 B.P.D.
Rowen & Hope No. 2 Laurel, Sur. 1,006. Drlg. 1,657 ft.

LaSal Vieja—Willacy County

Shell Pet. Corp. No. 2 Yturria, Sh. 64, Carricitos Gr. Drlg. 5,306 ft.

Byersville—Williamson County

A. C. Schramm No. 1 Zieschang, Hamilton White Sur. Set csg. 859 ft.; W.O.C.

Escobas—Zapata County

Dulup Oil Co. No. 27 Trevino, Sur. 412. Sd. 1,250-51 ft.; comp. 20 B.P.D. on pump.
B. W. Roscoe No. 31 Bustimante, Sh. 33. Fansler Part. Comp. 22 B.P.D. on pump.
B. W. Roscoe No. 30 Bustimante, Sh. 33. Comp. 30 B.P.D. on pump; T.D. 1,240½ ft.
Texas Co. No. 106 Jennings, Cerrito Blanco. Gr. Set 7-in. csg. 1,275 ft.; T.D. 1,290 ft.; comp. 60 B.P.D.
Texas Co. No. 107 Jennings, Cerrito Blanco Gr. R.U.

NORTH TEXAS WILDCATS

Archer County

Burk Roy. Co. No. 1 J. B. Miller, sec. 20, A.T.N.C.L. Sur. Drk.
Hamon, Hanlon-Buchanan, Inc., et al No. 1 W. P. Ferguson, sec. 2, H.&G.N. Sur. Drlg. 2,400 ft.

Baylor County

Golding & Cochran No. 1 Louis Hencirik, sec. 5, B.B.B.&C. Sur. Loc.
Hampton et al No. 1 A. G. Cochrell, sec. 2,404, T.E.&L. Sur. Drlg. 750 ft.

Clay County

Bridwell Oil Co. No. 2 H. Boddy, E. Humphries Sur. A-195. Drlg. 1,100 ft.
W. Gant No. 5 C. M. Worsham, D.L.&C.A. Sur. 1,073. Drlg. 2,200 ft.
T. E. Seigler No. 1 G. W. Scaling, G. F. Bridgeman Sur. A-40. Drlg. 830 ft.

Cooke County

Benton & Holmes No. 1 Gibson, J. English Sur. A-345. Fsg. 3,700 ft.
Seitz, Comegy & Seitz No. 1 W. A. Erwin, B.B.B.&C. Sur. A-162. Drlg. 600 ft.

Denton County

B. Bender et al No. 1 A. Dyer, J. Gilbert Sur. A-451. Spud.
W. C. Curry et al No. 1 G. F. Owens, N. Rudder Sur. A-1060. Drlg. 310 ft.
Bruce Lee No. 1 Boyles, S. Ross Sur. A-112. Drlg. 1,125 ft.
Miller Bros. No. 1 D. H. Luster, F. Trevino Sur. A-121. Fsg. 2,000 ft.
Scroggins et al No. 1 B. M. Freeman, Bradshaw Sur. A-104. S.D.O. 1,900 ft.
Wilcox O. & G. Co. No. 1 D. W. Light, M. V. Sur. Drlg. 2,500 ft.

Foard County

O. P. Burnham No. 1 Ward, sec. 21, H.& T.C. Sur., Blk. 8. Drlg. 2,030 ft.

Grayson County

Denver P. & R. No. 1 Cannon, A. Berry Sur. A-130. Cmtd. 6⅝-in. 2,388 ft.; S.S.O. 2,388-85 ft.; 400 ft. O., 50 ft. S.W.I.H.

Montague County

J. W. Sorrell et al No. 1 J. E. Walthall, S. H. Smith Sur. A-662. S.D. 2,000 ft.
Ventex Investments, Ltd., No. 1 S. E. Bell sec. 11, M.E.P.&P. Sur. Reps. to boiler 3,390 ft.

Wichita County

W. B. Hamilton No. 1 Mrs. M. Parker, M. Ramsey Sur. A-471. Drlg. 810 ft.
LeBus No. 1 J. F. Miller, W. R. Eaves Sur. A-447. Drlg. 2,846 ft.
W. B. Omohundro No. 1 First Natl. Co., sec. 28, W.V.F.L. Sur. Drlg. 700 ft.
Patterson et al No. 1 B. C. Ellis, J. Waldschmidt Sur. A-792. Drlg. 895 ft.
Felix Payne No. 1 P. R. Pace, R. J. Scott Sur. A-253. Loc.
E. J. Stump No. 1 M. P. Bishop, L. Netherley Sur. A-240. Set surface pipe; W.O.R.
E. J. Stump et al No. 1 J. and J. Waggoner, W. R. Eaves Sur. A-753. Drlg. 2,630 ft.
Clyde Texan Oil Fields Co. No. 1 A. W. Burnside, John M. Sharp Sur. A-262. Set 10-in. 154 ft.; W.O.C.

Wilbarger County

Barry & Hayes No. 1 McGill, sec. 3, Blk 9, H.&T.C. Sur. U.R. 10-in.; drlg. 2,600 ft.
King Oil Co. No. 1 R. L. Castleberry, sec. 68, H.&T.C. Sur., Blk. 14. Drlg. 1,200 ft.
W. W. McDonald No. 3 Waggoner A, sec. 26, H.&T.C. Sur. Testing lime 3,638-54 ft. with acid; P.B. and tstg. S.S.O. 3,-117-25 ft.

Wise County

W. D. Dilbeck No. 1 J. I. Wilkins, E. Stephens Sur. S.D. 600 ft.
Latex Oil Co. No. 1 C. R. Smith, J. Couch Sur. A-104. Showing gas 3,843-45 ft.; 6⅝-in. 3,843 ft.; W.O.C.

Young County

Eppenauer Drlg. Co. No. 1 J. B. Hazelton J. Harmon Sur. A-1607. Drlg. 3,790 ft.
T. D. Humphrey No. 1 S. R. Ragland T. B. Kuykendall Sur. 5⅛-in. 4,196 ft.; W.O.C.
L. A. Long No. 1 F. A. Burnett, E.G. Rector Sur. No. A-239. Spudded.
Lupton & Long No. 1 W. I. Gilmore, J. Gilmore Sur. A-2,135. Drlg. 2,800 ft.
W-K Royalty Co. No. 1 J. A. Wright, J. N. Taylor Sur. A-1,243. Drlg. 900 ft.

E. C. TEXAS WILDCATS

Cherokee County

Merica Oil Co. (W. L. Stone) No. 1 Cherokee Dev. Co., A. J. Acker Sur., 2 mi. E of Maydelle. M.I.M.

Falls County

M. Hays et al No. 1 Mrs. J. J. Hodges, N. K. Robinson Sur., 5 mi. SW of Lott. S.D. 1,567 ft.

Fannin County

Stewart Drlg. Co. No. 1 N. Young, S. H. Hitchcock Sur., 1 mi. W of Randolph, W. of Glazier & Trippe No. 1 Young dry hole. Drlg. 2,227 ft.

Freestone County

Holt et al No. 1 W. H. Chambers, W. D. Allison Sur., 2¾ mi. N of Keechi 5,200-ft. test. El. 426 ft. Pecan Gap 2,990-4,-690 ft.; drlg. 5,524 ft.
C. E. Rossiter No. 1 J. P. Fulton in J. P. Fulton Sur., 2½ mi. E of Donie. S.D. 956 ft.

Gregg County

Humble O. & R. Co. & Gulf O. Corp. No. 1 E. Robertson, M. Mann Sur., 2½ mi. SW of Longview Trinity test. El. 272 ft.; Austin 3,329-71 ft.; top sand 3,371 ft.; drlg. 3,512 ft.

Henderson County

American Liberty Oil Co. et al No. 1 LaRue & Johnson, Blk. 11, P. Jackson Sur., 2 mi. W of LaRue. El. 464 ft.; top Woodbine 4,464 ft.; drlg. 5,220 ft.
Wm. McDougall No. 1 Trinity, F. & S. Land Co., Blk. 1, H.&T.C. Sur. Drk.
Tide Water Assoc. et al No. 2-C McElreath & Suggett W. P. Wyche Sur. Top Glen Rose 6,282 ft.; drlg. 8,825 ft.

Houston County

American Liberty No. 2 J. A. Bean, W. Burke Sur., 1 mi. N of Grapeland, approx. 2,200 ft. E of No. 1. Drlg. 4,430 ft.
Ridgeway-Jackson No. 2 H. F. Moore, H. Master Sur., 2 mi. SE of Crockett. M.I.M.

Leon County

Kelly & Fox No. 1 Bryant, A. M. Coultarn Sur., 1 mi. E of Marquez. S.D.

Limestone County

Pure Oil Co. No. 16-T Kendrick, P. Varella Sur., Mexia field. Drlg. 7,002 ft.
Stanolind O. & G. Co. No. 1 T. Norris, in Thresher Sur., 5 mi. N of Kosse; 6,500-ft. test. El. 528 ft.; S.D. 2,324 ft.

Morris County

J. O. Whittington No. 1 Joiner Leasing Co., T.C.R.R. Sur. No. 734, 8 m. NW Naples. Drlg. 4,011 ft.

Nacogdoches County

G. C. Collier and Corley No. 1-A A. T. Mast, 14 mi. SW of Nacogdoches, T. S. Lambert Sur., 750 ft. N of No. 1. R.U.

Navarro County

Mrs. Jane Robinson No. 1 Fortson Bros., Eli Smith Sur., 5 mi. NE Corsicana. S.D. 10 ft.
T. Sharpe et al No. 1 E. B. McDowell, T. Jordan Sur., ½ mi. S of Bassets. S.D. 2,300 ft.

Red River County

Roy I. Carter Drlg. Co. No. 1 J. A. Tutt, C 40-ac. tr. in D. Hart Sur., 2 mi. S of Avery. S.D. 900 ft.
Cosby, Inc., No. 1 Hocker & Hughes, southern part of county. Top Woodbine 2,853 ft.; S.D. 2,880 ft.

Rusk County

J. Merrick et al No. 1 Tipps, T. Uzzell Sur., 6 mi. S of East Texas field. S.D. 3,888 ft.
Nivia Oil Co. No. 1 Citizens Natl. Bank, M. D. Carmel Sur. 2½ mi. SE of Henderson. S.D. 6,802 ft.
J. W. Shipman et al No. 1 Citizens Bank J. J. Y'Barbo Sur., 4 mi. NE of Henderson. S.D. 4,500 ft.

Van Zandt County

P. E. Hill No. 1 J. L. Chitty, M. Neal Sur., 12 mi. S of Canton. Drlg. 1,800 ft.

EAST TEXAS

(Border Counties)

Cass County

American Liberty Oil Co. No. 5 Maxie, John Collom Sur. R.U.
Bay Oil Corp. No. 2 Geo. Parker, G. Crowder Sur. 7-in. 6,026 ft.; T.D. 6,097 ft.
Bay Oil Co. No. 2 Geo. Parker, G. Crowder Sur. T.D. 6,040 ft.; tstg.
R. W. Norton No. 2 Hussey, P. Evans Sur. Drlg. 5,923 ft.
Ohio Oil Co. No. 20 E. P. Willis S.F.I.W Sur. Comp.; flw. 196 B.P.D.; T.D. 5,989 ft.
W. G. Ray Drlg. Co. No. 2-B Geo. Parker, G. Crowder Sur. Comp.; flw. 100 B. P.D.; T.D. 6,058 ft.
United Prod Co. No. 4 Allday, P. Evans Sur. T.D. 6,016 ft.; tstg.
United Prod. Co. No. 4 Belote, H. Holbert Sur. Drlg. 300 ft.
United Prod. Co. No. 7 Bewley, H. Holbert Sur. Drlg. 4,068 ft.
United Prod Co. No. 1 fee, H. Holbert Sur. T.D. 6,070 ft.; shot and tstg.
United Prod. Co. No. 2 fee 575, B. Holms Sur. Drlg. 5,288 ft.
United Prod. Co. No. 1-A Starke, D. Gilliam Sur. T.D. 6,050 ft.; acid.
United Prod. Co. No. 2-A Starke, D. Gilliam Sur. T.D. 6,040 ft.; acid.

Harrison County

J. B. Bond et al No. 1 Bailey & Martin, Geo. Martin Sur. Drlg. 5,100 ft.

Marion County—Rodessa

Arkansas-Louisiana Gas Co. No. 2 Emma Ford, A. D. S. Coy Sur. Drlg. 205 ft.
Arkansas-La. Gas Co. No. 1 J. P. Fant, L. P. Cadenhead Sur. P.B. and tstg.
Fohs Oil Co. No. 1 W. T. Neilon, R. Bennington Sur. R.U.
Fohs Oil Co. No. 2 M. Reynolds, A. D. S. Coy Sur. Drlg. 5,315 ft.
Holcomb & Thomasson No. 1 Gray-Taylor, A. D. S. Coy Sur. Drlg. 992 ft.
Holcomb & Thomason No. 1 L. Henderson, C Lots 4 and 6, R. Bennington Sur. Comp.; flw. 646 B.P.D.; T.D. 6,050 ft.
Mid-Continent Pet. Corp. No. 2 Sorry, A. D. S. Coy Sur. 7-in. cmt. 6,073 ft.; T.D. 6,108 ft.
Mid-Continent Pet. Corp. No. 3 Sorry, A. D. S. Coy Sur. T.D. 6,054 ft.; tstg.
Hunter Co. No. 3 Fonda, A. D. S. Coy Sur. T.D. 6,051 ft.; flw. and tstg.
Shell Pet. Corp. No. 1 L. Henderson, R. Bennington Sur., Lot 8. Drlg. 4,586 ft.
United Prod. Co. No. 2 Hutchinson, A. D. S. Coy Sur. Drlg. 4,689 ft.
United Prod. Co. No. 3 Hutchinson, A. D. S. Coy Sur. R.U.

Panola County

Danciger O. & G. Co. No. 1 Tatum, A. Bissell Sur. Drlg. 5,500 ft.
Magnolia Pet. Co. No. 2 E. A. Hull, Thos Applewhite Sur. Drlg. 8,149 ft.

Shelby County

C. A. Parker, Jr., No. 1 W. D. George, Clement Tutt Sur. S.D. 1,450 ft.; wtr.
Siler and Riley No. 1 Rushing, M. Smith Sur. S.D. 3,020 ft.; cor. depth.

WEST TEXAS WILDCATS

Andrews County

Amerada Pet. Corp. No. 1 L. Littman sec. 6, Blk. A-29, P.S.L. Sur. T.D. 4,777 ft.; P.B. to 4,369 ft.; S.D.O.
American Liberty O. Co. No. 1 E. Cowden sec. 14, Blk. A-55, P.S.L. Sur. S.D. 5,002 ft.
M. J. Delaney No. 1 E. P. Moore, sec. 12, Blk. A-20, P.S.L. Sur. T.D. 4,579 ft.; swbg. 1 bbl. oil every 2 hrs.
Drlg. & Expl. Co. No. 1 Thornberg, sec. 8, Blk. A-42, P.S.L. Sur. Loc.
M. S. Forgeron et al No. 1 Lockhart & Brown, C NE¼ sec. 20, Blk. A-41, P.S.L. Sur. S.D. 179 ft.
Gulf Oil Corp. No. 1 State, sec. 8, Blk. 14, R.U.R.

Bailey County

Etz & Robinson No. 1 Enochs, Tract 68, League 182, Floyd Co. School Lands Sur. S.D. 1,970 ft. R.U.S.T.

Brewster County

F. C. Dodson No. 1 Texas American Synd sec. 66, Blk. 10, G.H.&S.A. Sur. S.D. 6,001 ft.
Storey No. 1 Wilson, sec. 3, Blk. 212, T.& St.L. Sur. S.D. 2,545 ft.

Cochran County

Texas Co. No. 1 Slaughter, Drlg. 4,642 ft.
P. N. Wiggins et al No. 1 Dean, NE cor. League 58, Martin Co. School Lands. T.D. 2,285 ft.; crooked hole.
Pete Wiggins et al No. 1 C. Slaughter Dean, C Lab. 26, League 92, Lipscomb Co. Sch. Ld. Drlg. 5,335 ft.; 2,000 ft. oil in hole.

Coke County

H. E. Ogden et al No. 1 Rawlins, sec. 390, Blk. B-21. S.D. 515 ft.

Crane County

Gulf Oil Corp. No. 2 McKnight, sec. 6, Blk. B-21. T.D. 5,404 ft.; P.B. to 3,210 ft.; W.O.C.
Wilcox O. & G. Co. No. 1 McKnight, sec. 9, Blk. 46, Twp. 3s, G.M.M.B.&A. Sur. Drlg. 3,000 ft.

Crockett County

Moore Bros. No. 1 P. Perner, sec. 37, Blk. 2, I.&G.N. Sur. Drlg. 1,202 ft.
J. N. Simpson No. 1 Hoover, sec. 2, Blk. FF, G.C.&S.F. Sur. R.U.S.T.

Dawson County

R. Albaugh No. 1 D. Hogg, SE of SE sec 17, Blk. 34, Twp. 4n, T.&P. Sur. W.O.C. 3,560 ft.
E. L. Wilson No. 1 Scanlon, Sec. 83, Blk M, E.L.R.R. Sur. S.D. 4,965 ft.; P.B. to 4,933 ft.; W.O.C.

Dickens County

C. E. Litchfield No. 1 Harris, sec. 354, Blk. 1, H.&G.N. Sur. S.D. 1,500 ft.

Edwards County

A. P. Carter No. 1 F. D. Sweeten, S&E sec. 48, Blk. 2, B&B Sur., 1⅛ mi. E of Rock Springs. S.D. 700 ft.

Ector County

Fuhrman Pet. Corp. No. 1 E. Cowden, sec 41, Blk. 43, Twp. 2s, T.&P. Sur. Drlg. 4,026 ft.
Shasta Oil Co. No. 1 K. Sands, sec. 32 Blk. 44, T.&P. Sur. T.D. 4,300 ft.; P.B. to 4,295 ft.; testing.

Fisher County

Consolidated Oil Co. et al No. 1 Florida. Drlg. 1,822 ft.

Gaines County

Amerada Pet. Corp. No. 1 Cox, NW cor. sec. 380, Blk. G, C.C.S.D.&R.G.N.G. Sur. T.D. 5,079 ft.; P.B. 5,060 ft.; acd.; P.B. to 4,952 ft.; testing.
Amerada Pet. Corp. No. 1 Matthews, sec. 417, Blk. G, C.C.S.D.&R.G.N.G. Sur. T.D. 5,018 ft.; P.B. to 5,008 ft.; swbg.
Continental Oil Co. No. 2 Jones, 1,980 ft. from N and 660 ft. from E, sec. 1, Blk. A-8, P.S.L. Sur. Loc.
R. H. Gill No. 1 S. R. Simpson, sec. 8, Blk. C-44, P.S.L. Sur. Drlg. 2,400 ft.

Hockley County

Frank A. Bates No. 1 Lockett, C of NE of S sec. 5, Blk. 1, P.S.L. Sur. T.D. 4,-650 ft.; S.D.
Stanolind O. & G. Co. No. 1 A. A. Slaughter, C SW¼ Labour 76, League 37, Zavalla Co. Sch. Lds. Sur. T.D. 4,975 ft.; acidized and swabbing.

Howard County

Iron Mt. Oil Co. No. 1 D. H. Snyder, sec. 28, Blk. 30, Twp. 1s, T.&P. Sur. T.D. 2,900 ft.; C.O. after shot.
W. F. McDermott et al No. 1 Lucas, sec. 18, Blk. 29, Twp. 1n, T.&P. Sur., 5 mi. N of Dodge pool. T.D. 100 ft.; S.D.

Hudspeth County

Haymon Krupp Oil & Ld. Co. No. 1 Thaxton, SE¼ sec. 34, Blk. 74, Twp. 6, T.D. 3,080 ft.; lost hole.
Haymon Krupp No. 1 Briggs. S.D. 60 ft.

Jeff Davis County

H. D. Wilcox et al No. 1 Jones-Coffield S.D. 3,315 ft.

Loving County

Barnett Pet. Co. No. 1-A Johnson, sec. 9, Blk. 57, Twp. 1, T.&P. Sur. W.O.C. 1,427 ft.
Barnett Pet. Corp. No. 1-B W. D. Johnson, sec. 12, Blk. 56, Twp. 1, T.&P. Sur. Fsg. 1,176 ft.
Continental Oil Co. No. 1 E. C. Marrs, sec. 20, Blk. 54, Twp. 2, T.&P. Sur. W.O.C. 1,925 ft.

Martin County

J. L. Green et al No. 1 O. B. Holt, C of Labour 20, Lge. 319, Garza Co. Sch. Lds. R.U.S.T.

Mitchell County

Harris & Anderson No. 1 A. F. King, sec. 11, Blk. 28, Twp.1s, T.&P. Sur. Drlg. 3,210 ft.
Mitchell O. & G. Co. No. 1 Z. Morrison, sec. 36, Blk. 29, Twp. 1n, T.&P. Sur. S.D. 3,157 ft.

Nolan County

M. S. Ingleright & L. E. Hults No. 1 Blank, Blk. 1-A, H.&T.C. Sur., near Decker, 4,000-ft. test. M.I.M.

Pecos County

K. Kimberlin No. 1 Humble-Young, sec. 49, Blk. 10, H.&G.N. Sur. S.D. 1,680 ft.
S. Thompson No. 1 Elsinore Cattle Co., sec. 54, Blk. D, G.C.&S.F. Sur. Fsg. 5,804 ft.
Trans-Pecos Oil Co. No. 1 Popham, T.D. 535 ft.; lost hole; skd. 25 ft. south; T.D. 540 ft.; set csg.
W. K. Tuller No. 2 Perry. T.D. 1,920 ft.

Presidio County

L. C. Brite No. 4 fee, C NW¼ sec. 113, Blk 12, G.H.&S.A. Sur. Fsg. 4,375 ft.
Sadler Bros. et al No. 1 Bagley. S.D. 3,315 ft.

Reagan County

K. E. Sherman No. 1 W. E. Friend, se. cor. sec. 3, Wm. Allen Sur. U.R.; T.D. 2,176 ft.; to U.R. csg.
Moore Bros. No. 1 University, sec. 8, Blk. 7. Drlg. 2,737 ft.

Reeves County

Barnett Pet. Corp. No. 1 Ely, sec. 38, Blk. 71, P.S.L. Sur., 12 mi. NW of Toyah. Fsg. 1,400 ft.

Runnels County

Hall Oil Co. No. 1 Reddo, sec. 51, Thompson Casey Sur. Drk.
K Z Oil Co. No. 1 H. Fletcher, E. C. Good Sur. Fsk. 3,170 ft.
Stevens & Gloves No. 1 Fowler, sec. 150, E.T.R.R. Sur., 2 mi. NE of Ballinger. T.D. 1,095 ft.; S.D.

Schleicher County

J. M. Cooper No. 2 B. Page, sec. 40, Blk. L, G.H.&S.A. Sur. S.D. 4,540 ft.
Tex.Tor Oil Corp. No. 1 Judkins & Spencer, C of SW¼ sec. 33, Blk. A, A.&B. Sur. Drlg. 2,800 ft.

Scurry County

C. W. Guthrie et al No. 1 F. W. Hardee, sec. 99, Blk. 97, H.&T.C. Sur., S.D.
Robinson Drlg. Co. No. 1 Martin, sec. 147, H.&T.C. Sur. R.U. spudder.

Sterling County

Wilcox O. & G. Co. No. 1 Kinnebrew Est., sec. 101, Blk. 2, H.&T.C. Sur. S.D. 1,235 ft.
Snowden & McSweeney No. 1 Harris, 330 ft. from S and W of NE¼ sec. 110, Blk. 6, H.&T.C. Sur., 20 mi. SE of Sterling City. M.I.M.

Sutton County

Ordovician Oil Co. No. 1 Evans, 330 ft. from N and E of sec. 1, L. Stubblefield Sur., 32 mi. SE of Sonora. Drlg. 1,503 ft.

Terry County

Anthony & Rice No. 1 Brownfield, C NW¼ sec. 28, Blk. A-1, E.L.R.R. Sur. Drlg. 5,059 ft.
R. L. Foree No. 1 A. E. Pool, sec. 54, Blk. D-11, D.&S.E. Sur. Drlg. 5,238 ft.

Upton County

Maverick Oil Co. No. 1- Holmsley, sec. 16, Blk. B, C.C.S.D.&R.G.N.G. Sur., 14 mi. NE of Rankin. S.D. 4,042 ft.

Oil Man's Calendar

September

15-17—Atlantic City, National Petroleum Association, annual meeting, Hotel Traymore.

16-19—Taft, Calif., Pacific Oil Show and Black Gold Festival.

24-25—Traverse City, Mich., Michigan Petroleum Association.

29-30—Cleveland, Ohio, Ohio Petroleum Marketers Association, Fall Conference, Hotel Carter.

September—October

27-Oct. 1—Rochester, National Association of Petroleum Retailers, fifth national convention.

27-Oct. 1—Cleveland, Ohio, American Gas Association, nineteenth annual convention.

30-Oct. 1—Tulsa, S.A.E. Fuels and Lubricants Regional Meeting.

October

4-5—Chicago, Ill., National Lubricating Grease Institute, fifth annual convention, Blackstone Hotel.

5—Kilgore, Tex., East Texas Chapter, American Petroleum Institute.

7-8—Oklahoma City, fall meeting of Petroleum Division of A.I.M.E., Hotel Biltmore.

7-9—Los Angeles, Calif., S.A.E. National Aircraft Production Meeting, Ambassador Hotel.

11-15—Kansas City, Mo., Twenty-sixth National Safety Congress and Exposition.

11-16—Houston, Tex., Oil-World Exposition.

12-14—Chicago, Ill., National Oil Marketers Association Convention, Stevens Hotel.

14-16—Pittsburgh, Pa., mid-year meeting, American Association of Petroleum Geologists, William Penn Hotel.

14-16—Houston, Tex., Independent Petroleum Association of America, annual meeting.

18-22—Atlantic City, N. J., American Welding Society, Eighteenth Annual Meeting and Welding Exposition.

27-28—Indianapolis, Ind., Indiana Independent Petroleum Association, Annual Fall Convention, Hotel Severin.

28—New York, S.A.E. Annual Dinner, Commodore Hotel.

29-30—Dallas, Tex., Mid-Continent Oil and Gas Association of Texas, annual meeting.

October—November

27-Nov. 3—New York, National Automobile Show, Grand Central Palace.

November

8-12—Chicago, American Petroleum Institute, Eighteenth Annual meeting, Stevens Hotel.

16—New York, Oil Trades Association of New York.

December

6—Memphis, Tenn., National Asphalt Congress.

6-11—New York, Exposition of Chemical Industries, Grand Central Palace.

8-10—Flint, Mich., S.A.E. National Production Meeting.

1938—March

16-8—New Orleans, twenty-third annual meeting, American Association of Petroleum Geologists, Roosevelt Hotel.

April

17-21—Dallas, Tex., American Chemical Society.

Ward County

Mahres No. 1 Wilson, sec. 133, Blk. 34, H.&T.C. Sur. T.D. 5,094 ft.; P.B. to 5,089 ft.; testing.

L. F. White et al No. 1 Rector-Monroe, E cor. sec. 3, Blk. 1, W.&N.W. Sur. Top Del. L. 4,635 ft.; top Del. sd. 4,670 ft.; T.D. 4,710 ft.; testing.

Yoakum County

Bohago & Bond No. 1 West, sec. 606. Blk. D. T.D. 5,255 ft.; swbd. 36 bbls. in 2 hrs.

Denver Dev. Co. No. 1 Whittenburg, sec. 831, Blk. D, J. H. Gibson Sur. T.D. 5,001 ft.; S.I.

J. L. Green No. 1 Bartlett, NE¼ sec. 359, Blk. D, 12 mi. W of Plains. Loc.

Moore Bros. No. 1 Cleveland, sec. 706, Blk. D, J. H. Gibson Sur. T.D. 5,506 ft.; P.B. to 5,328 ft.; bailing.

Standard of Texas No. 1 M. B. Sawyer, sec. 576, Blk. D, J. H. Gibson Sur. Drlg. 3,525 ft.

Texas Co. No. 1 Walker, sec. 794, Blk. D El. 3,656 ft.; T.D. 5,180 ft.; hit water; to plug back and acidize.

P. N. Wiggins et al No. 1 Bartlett, 440 ft. from N and E, sec. 359, Blk. D. Loc.

RANGER (CENTRAL TEXAS) DISTRICT

Brown County

C. R. Cox, Tr., No. 1 Jan Lee, sec. 11, B.B.B.&C. Sur., NE cor. county. S.D. 240 ft.

R. A. J. Cox et al No. 1 H. A. Nichols, 10 mi. SE of Cross Cut, F. Wardsziski Sur., sec. 477. Drlg. 300 ft.

W. T. Daniels et al No. 1 Joyner, 1 mi. S Brownwood, T. Smith Sur. No. 600, Abst. 821. Drlg. 1,610 ft.

Garland Moore et al No. 1 T. S. Williams, 1 mi. NE Grosvenor. Sec. 40, H.T.&B. Sur., Abst. 2037. Spdg. & S.D.

Callahan County

Hal Hughes No. 1 Poindexter, 330 ft. fr. N&E of sec. 350, Geo. Hancock. Sur. 2 mi. NE of Oplin. S.D. for water.

J. C. Jackson et al No. 1 Thompson, 2 mi. S Eula, sec. 30, B.B.B.&C. Sur. U.R. 6⅝-in. 1,350 ft.

Phillips Pet. Co. No. 1 Cozart, 1 mi. NW Scranton, M. Cherry Sur. Cellar.

Coleman County

J. F. Brock No. 1 J. H. Livingston, SE cor. SW¼ county, J. D. Waters Sur. No. 208. Loc.

Dixie O.&G. Co. No. 1 Reaves, 6 mi. NW Bangs, J. M. Rhine Sur. No. 629. S.D. 805 reprs.

Comanche County

N. D. Gallagher et al No. 1 Mrs. B. L. Terry, Desdemona pool, N. H. Kuyken dall Sur. Drlg. 4,175 ft.

Dobbs Oil Co. No. 1 Hodges, sec. 11, Blk. 2, H.&T.C. Sur. Drlg. 220 ft.

Eastland County

G. D. Chastain et al No. 1 Weddington, 4 mi. N Cisco, sec. 496, S.P.R.R. Sur. Drlg. 675 ft.

Hickok Prod. & Dev. Co. No. 1 Van Parmer, NW cor. county, sec. 477, S.P.R.R. Sur. Drlg. 230 ft.

J. D. Kittrell No. 1 Reynolds, 5 mi. E of Carbon, sec. 23, H.&T.C. Sur., Blk. 1. Drlg. 200 ft.

Monark O. & G. Co. No. 1 Downtain, sec 14 H.&T.C. Sur. Blk. 4, 3 mi. N Eastland. Drlg. 1,875 ft.

Erath County

Arnold Oil Co. No. 1 McMillan, 2 mi. SE of Desdemona, T. H. Dixon Sur., Abst. 1103. S.D. 160 ft.

Haskell County

E. W. Marland & H. B. Drake No. 1 Corothers, 6 mi. S Haskell, sec. 67, D. E Zaaz Sur. Drlg. 2,475 ft.

Jack County

Bennett Pet. Corp. No. 1 J. S. Rhodes, 2½ mi. NE Bryson, W. Higgins Sur., Abst. 2,199. Loc.

J. P. Burrus No. 1 W. J. Eatherly, J Helmstutler Sur. T.D. 1,200 ft.; S.D. Hanlon-Buchanan, Inc., No. 1 Rankin, 2 mi. NE Rhodes pool, J. W. Matlock Sur., Abst. 1479. M.I.M.

Hanlon-Buchanan, Inc., No. 1 Worthings, E edge Avis, 330 ft. from N and 1,614 ft. from W, S.A.&M.G. Sur., Abst. 589. Drk. and material.

Kerlyn Oil Co. No. 1 Ventioner, 5 mi. E Avis, S. R. Moss Sur., Abst. 403. Drlg. 2,600 ft.

H. B. Madden No. 1 J. L. Mask, sec. 2708, T.E.&L. Sur. S.D. 3,000 ft.

Nelson Oil Synd. No. 1 Henderson, 2 mi. SW Bryson, A. S. Ensworth Sur., Abst. 1,789. 6⅝-in. csg. 2,780 ft.; W.O.C.

Panhandle Ref. Co. No. 1 D. R. Sewell, 4 mi. E of Bryson, Mary Hamilton Sur., Abst. 262. S.O. 3,049-62 ft.; prep. to shoot.

R. A. Westbrook No. 1 W. Knox, sec. 83. B.B.B.&C. Sur. Drlg. 3,750 ft.

Joe Worsham et al No. 1 Cash, 3½ mi. NE of Bryson, I. White Sur., Abst. 895. Fsg. bit 3,200 ft.

Jones County

Brown Eagle Oil Co. et al No. 1 Glaze, 2 mi. E. Hawley, Subd. 5, R. Smith Sur No. 192. Drlg. 1,780 ft.

E. P. Campbell No. 1 Minter, 4 mi. N Hawley, sec. 26, T.&P. Sur., Blk 15. S.D. 2,325 ft.

Fain & McGaha Oil Corp. No. 1 Akens, 3 mi. SW Hawley, sec. 18, T.&P. Sur., Blk. 16. Swaging csg.; T.D. 1,785 ft.; C.O.

Fain & McGaha Oil Corp. No. 1 Francis Olson, 3 mi. NE Avoca, sec. 190, B.B.B. &C. Sur. Drlg. 250 ft.

Fain & McGaha Oil Corp. No. 1 Minter, 3 mi. NW Hawley, Lot 12, Robt. Smith Sur. No. 192. T.D. 2,065 ft.; C.O.

Fain & McGaha Oil Corp. No. 1 J. H. Wheeler, 3 mi. NW Sandy Ridge pool, sec. 55, O.A.I. Sur. U.R. 6⅝-in. 2,225 ft.

Iron Mountain and Humble No. 2 Jones & Stasney, 3 mi. NE Avoca, 330 ft. from N and W lines of sec. 196, B.B.B.&C. Sur. Loc.

M. A. Mead No. 1 H. Osment, S.D. 500 ft.

Murray & Harrison et al No. 1 Little, 3½ mi. NE Avoca, sec. 172, B.B.B.&C. Sur. Drlg. 2,465 ft.

Oil States Expl. Co. No. 1 Olson, 4 mi. N Avoca, 330 ft. from N and W lines of SW¼ sec. 182, B.B.B.&C. Sur. Loc.

W. H. Peckham No. 1 Davis et al, 3 mi. SW Lueders. Subd. 8, F. M. Smith Sur No. 3. S.D. 2,085 ft.

Roeser & Pendleton No. 1 Rosenquist, 4½ mi. NE Avoca, 330 ft. from S and E lines of NW¼ sec. 181, B.B.B.&C. Sur. Rig. up.

Shaheen Oil Co. et al No. 1 Jenson, 2 mi. E Acova, sec. 198, B.B.B.&C. Sur. Fsg. bit 1,175 ft.

Riddle et al No. 1 J. D. Freeman, 8 mi. SW Anson, sec. 6, T.&P. Sur., Blk. 17. Drlg. 2,475 ft.

Southern Oil Co. No. 1 B. W. Thane N cor. County. Andrew Jones Sur. 114 U.R. 8¼-in. 1,450 ft.

A. G. Swanson No. 1 Manley, 7 mi. S Nugent, sec. 46, T.&P. Sur., Blk. 14. S.D. 1,610 ft.

Tillman & Adams No. 1 Woodson, 1½ mi. SE Avoca, 330 ft. from S line and C E and W of SW¼ sec. 200, B.B.B.&C. Sur. Loc.

Ungren & Frazier et al No. 1 Carl Ecdahl, 3½ mi. NE Avoca, sec. 188, B.B.B.&C. Sur. Spud. and S.D.

Ungren & Frazier No. 1 Melton, 4½ mi. SW Hawley, John Winters Sur. U.R. 8¼-in. 2,140 ft.

Ungren & Frazier & West No. 1 Southard, 3 mi. SE Avoca, sec. 202, B.B.B. &C. Sur. Drlg. 1,350 ft.

Palo Pinto County

W. H. Clement No. 1 Federal Life Ins. Co., 2 mi. W Mineral Wells, sec. 51, T.&P. Sur., Blk. A (E of B). S.D. for pipe 400 ft.

Bill Cole et al No. 1 J. W. Harris Est., NW cor. county, De La Garza Sur. Drk.

Paul Garrett No. 1 Mabry heirs, NE cor county, sec. 2,572, T.E.&L. Sur. S.D 470 ft.

Henry Hobbs et al No. 1 Bessie Holt, 4 mi S. Graford, sec. 1,783, T.E.&L. Sur S.D. 200 ft.

Lone Star Gas Co. No. 1 Hart Oil Corp CWL county, sec. 19n, T.&P. Sur., Blk. 3. 4,000-ft. test; drlg. 1,485 ft.

Earnest Lloyd et al No. 1 Bailey, 3 m. NE Graford, sec. 2,003, T.E.&L. Sur S.D. 1,802 ft.

Shackelford County

M. P. Moore et al No. 1 Geo. Gray, W side Bluff Creek pool, sec. 208, E.T.R.R Sur. L. 1,813-16 ft.; U.R. 6⅝-in.

Owens-Snebold Oil Corp. No. 1 Haterius, NW cor. county, sec. 163, B.B.B.&C. Sur. Moving in.

Stephens County

Barnett Pet. Corp. No. 1 J. Q. Corbett, 4 mi. SE Ivan, sec. 3, S.P.R.R. Sur., Blk 3. Marble Falls 3,994-95 ft.; est. 10,000,000 ft. gas; fsg.

Clark & Cowden et al No. 2 Echols Heirs, Blk. 3. Fsg. 4,017 ft.

Cox & Caprito No. 1 Donnell, 1 mi. SW Eliasville, sec. 1,208, T.E.&L. Sur. Sand 2,956-74 ft.; shot with 40 qts.; tstg.

Dean Bros. & Fortex Oil Corp. No. 1 Watson, 5 mi. SW Caddo, sec. 28, T.&P. Sur., Blk. 6. S.D. 1,175 ft.

W. B. Hamilton No. 1 B. O. Grant, CWL of county, sec. 63, B.A.L. Sur. 2,500-ft. test; drlg. 1,025 ft.

O. J. Perren No. 1 J. K. P. Hughes, NE cor. County of NW¼ sec. 6 A.B.&M Sur., Abst. 2,683. 1,500 ft. O.I.H.; shooting with 700 qts.

W. J. Rhodes No. 1 Black Bros., 8 mi. NE Breckenridge, sec. 1,135, T.E.&L. Sur. Drlg. 3,280 ft.

Stonewall County

General Crude Oil Co. No. 1 W. J. Bryan, 7 mi. N Hamlin, Subd. 10, Wm. Vardeman Sur. No. 347. Sd. 4,347-52 ft.; T.D. 4,372 ft.; P.B. to 3,509 ft. and cmtd.; W.O.C.

General Crude Oil Co. No. 1 B. F. Harrison, NW cor. D. Harcrow Sur., 1½ mi. N of No. 1 Bryan. Drlg. 1,000 ft.

Tarrant County

E. E. Hoffpauir et al No. 2 W. H. Davis 2 mi. S Arlington, H. Blackwell Sur. S.D.O. 2,140 ft

Taylor County

Louis Davis No. 1 E. Lincicum, NE cor county, sec. 21, B.A.L. Sur. T.D. sand 1,998-2004 ft.; tstg.

A. Findley No. 1 Bewles Est., NE cor. county, 389 ft. from E and 608 ft. from S of sec. 26, B.A.L. Sur. Spudded.

Throckmorton County

G. C. Foster No. 2 Brown, 5 mi. NW Woodson, sec. 920, T.E.&L. Sur. Sand 4,426-27 ft.; prep. to test.

Wise County

Latex Oil Co. No. 1 Smith, 3 mi. E of Bridgeport, Jas. Couch Sur. 7-in. 3,843 ft.; W.O.C.

Canadian Fields

(Continued from Page 280)

No. 1, LSD 16, is below 6,500 feet and expected to get the Madison around 6,650 feet.

In section 16-8-2w5, Firestone Petroleums No. 1, LSD 13, is below 5,683 feet. Rich Well Oil Co. No. 1, LSD 5, has finished a fishing job and is deepening from 1,702 feet.

In section 9-18-2w5, National Petroleum Corp. No. 2, LSD 14, is standing with 10¾-inch casing cementing at 3,005 feet, waiting for rotary outfit from No. 1.

Okalta Fold

On the Okalta fold west of the main Turner Valley structure, Okalta Oil Co. No. 6, LSD 3, section 30-18-2w5, is below 1,270 feet.

South End Petroleums, LSD 16, section 36-18-3w5, is below 5,500 feet after cementing cavings. It is in the Fernie shales and the lime has been expected for some time.

North Turner Valley

In North Turner Valley, Phillips Royalties No. 1, LSD 16, section 16-18-2w5, is in the Upper Benton formation below 4,120 feet and nearing the cardium sandstone.

Home Oil Co. No. 1 Millarville, LSD 8, section 33-20-3w5, is in the Lower Blairmore below 5,100 feet.

Royalite to Complete Well

On the west flank of North Turner Valley, the Turner Basin (Stockmen No. 2) well, LSD 7, section 27-20-3w5, will be completed by the Royalite Oil Co. It was started originally by Stockmen Oils, Ltd., of Calgary whose No. 1 in LSD 1, same section, got gas in the Stockmen sand of the Blairmore formation. Later it was taken over by Turner Basin Oil Co. which in 1930 quit drilling at around 4,040 feet, the acreage and unfinished well reverting to Carl Ohlson and associates. The location is on a northwesterly line between the Model Oils producers and Home Oil Co. No. 1 Millarville, and will test a new west flank area. Gas line is being laid to location and drilling will probably be started this month.

The Gas Pipe Line Service Corporation

GENERAL PIPE LINE CONTRACTORS

25 YEARS EXPERIENCE

Main Office:
503 Circle Tower Bldg.,
Indianapolis, Ind.

Branch Office:
307 Dominion Bldg.,
Lima, Ohio

Mail us your plans and specifications for gas, oil, or gasoline.

PERSONAL

K. A. LOGAN, in charge of soil corrosion work of the Bureau of Standards, Washington, D. C., will speak at a soil corrosion meeting in the Chamber of Commerce hall in Houston, Tex., on September 23. Mr. Logan will discuss research work in soil corrosion being done by the bureau.

C. L. MOODY, chief geologist of the Ohio Oil Company in Shreveport, La., and vice president of the American Association of Petroleum Geologists, acted as host at a dinner given September 11 in Shreveport, to other officials of that association. Tentative plans for the 1938 annual convention of the A.A.P.G. in New Orleans, La., next March were discussed. H. B. FUQUA, of Fort Worth, Tex., president of the association; J. P. D. HULL, secretary of the association in Tulsa; IRA CRAM, of the Pure Oil Company, Tulsa, and R. A. STEINMAYER of Tulane University, New Orleans, were among the guests present.

H. E. CHRISTENSEN, district geologist for the Texas Company in Kansas, is ill in his home in Wichita.

M. C. HOFFMAN, assistant general superintendent of the Stanolind Oil & Gas Company, Tulsa, is back from a motor tour in Texas, New Mexico and Colorado. He was accompanied by MRS. HOFFMAN.

CHARLES MILLION has been placed in charge of scouting work for the H. F. Wilcox Oil & Gas Co. in the North Texas area. His headquarters are in Wichita Falls, and he has moved his family from Dallas to that city.

J. E. F. de KOK, general manager of the Royal Dutch Company, plans to leave The Hague near the end of September to make an air tour of South Africa. Traveling in his own plane, he will fly to Cairo and from that point will follow the Imperial Airways route.

N. W. BASS, of the U. S. Geological Survey, gave a paper last Monday evening in the Magnolia Building, Oklahoma City, before the Oklahoma City Geological Society. "Origin of the Verden Sandstone of Grady and Caddo Counties" was the title of the paper. The regular Monday luncheons of the society began this week.

J. A. BROWN, president of the Socony-Vacuum Oil Company, Inc., arriving in New York last Friday from an overseas trip, said European business of the company was being maintained at a gratifying level. No damage had been suffered by Socony-Vacuum properties in the war-torn Far East, Mr. Brown reported. He said the company had no plans for a new agency in Europe and was not contemplating expansion of domestic operations in the immediate future.

E. J. SADLER, vice president of the Standard Oil Company of New Jersey, headed a group of officials of that organization and its subsidiaries on a tour of inspection through Louisiana and Texas the past week. The tour ended in Houston, and the party left for New York Thursday. Executive members of the party included WALLACE E. PRATT; T. R. ARMSTRONG, vice president of the Lago Petroleum Company; E. HOLMAN, president of the Creole Petroleum Company; C. H. LIEB, president of the Carter Oil Company, Tulsa; M. J. RATHBONE, of Baton Rouge, president of the Standard Oil Company of Louisiana, and L. C. McCLOSKEY and B. A. MYERS, of the Imperial Oil Company of Toronto, Canada.

N. J. CLARK, Cleveland, Ohio, vice president in charge of sales of the Republic Steel Corporation, spent several days in Tulsa on his way east from a business trip to the Pacific coast.

MARTIN MEARS of the Associated Division of Tide Water Associated Oil Co., who has heretofore served in the dual capacity of superintendent of drilling operations and superintendent of the Ventura and Santa Maria divisions, has been placed in full charge of all drilling operations of the company. W. F. HERTEL, formerly assistant superintendent at Ventura Avenue, has succeeded Mr. Mears as superintendent of the Ventura and Santa Maria divisions.

R. C. MOORE, director of the Kansas State Geological Survey, and DR. ROBERT H. DOTT, head of the Oklahoma survey, supervised a recent three-day field trip over the Chautauqua Arch in southeastern Kansas and northeastern Oklahoma. The trip, sponsored by the Kansas Geological Society, started at Pittsburg. Details were handled by JOHN GARLOUGH and HARREL WHITE, assisted by ANTHONY FOLGER, RAY WHORTAN and A. E. CHENY. There were 46 automobiles in the train. L. E. FITTS, nephew of JOHN FITTS, for whom the Fitts pool in Oklahoma was named, was bitten by a rattlesnake, but prompt first aid in the field, followed by a fast ride to a hospital in Pawhuska, prevented serious consequences.

Do You Remember?

From The Oil and Gas Journal Files

25 YEARS AGO

The University of Pittsburgh will inaugurate a course of petroleum engineering. This is said to be the initial step in this direction among the universities of the United States. Such a course is also being agitated in England.

Miss Gladys Belle Stebbins, of Tulsa, secretary of the Gladys Belle Oil Co. was crowned as Shazada (queen) of the Durbar, which is being held this week in Tulsa.

Charles P. Byron, 67, prominent oil producer in the Eastern fields dies in Bradford, Pa., on September 13. John Livingston Grandin, 76, of Tidioute, Pa., banker, oil producer and lumberman, dies in a sanatorium in Battle Creek, Mich.

20 YEARS AGO

C. B. Shaffer drills to the deepest pay yet found in the Cushing, Okla., field (total depth 3,028 feet), and has a 1,500-bbl. well. The well is No. 1 Alice Colbert in section 11-18-7.

Standard Oil Co. of Indiana buys the site of its $3,500,000 headquarters building in Chicago, paying $1,000,000 for the land, 134x241 feet in size.

10 YEARS AGO

The inventory of one oil field supply store resulted in finding that it was carrying in stock 50,000 items necessary to serve its customers quickly. Standardization is expected to do away with many of these items.

Some oil men in Oklahoma fear that the southern limits of the productive Wilcox sand lie in Township 6-6, Seminole County, and that whatever oil there is between that and the Arbuckle Mountains will be found in shallow sands in Pontotoc County.

Headquarters of the Natural Gas Association of America in Pittsburgh, Pa., have been closed because of the amalgamation of that organization with the American Gas Association. Headquarters are now in New York.

A. E. BRADSHAW, president of the National Bank of Tulsa, has been elected to membership on the University of Tulsa board of trustees.

JAMES B. TEMPLETON, geologist and land man for the Deep Rock Oil Corporation in Shreveport, La., has been transferred to Wichita, Kans.

REV. HUGO HATERIOUS, pastor of a Lutheran Church near the new Avoca oil field in Jones County, Texas, faces a prospect of wealth. He owns in fee the 320 acres of land upon which the Iron Mountain Oil Company has brought in a well flowing at the rate of 4,800 bbls. daily, the biggest producer in that part of Texas. Mr. Haterious receives one-eighth royalty on all oil produced. The congregation too may profit handsomely. The plot on which the church stands has been leased, and preparations for a test well are under way.

HAROLD L. ICKES, secretary of the interior, is to give the principal address at the banquet in connection with the eighth annual meeting of the Independent Petroleum Association of America, to be held in Houston, Tex., October 14 to 16. The banquet will be held Friday evening, October 15. GEORGE A. HILL, JR., is chairman of the general committee on arrangements. Other chairmen follow: Balance of supply with demand, H. B. FELL; elimination of illegal production, JUDGE AMOS L. BEATTY; unnecessary and excessive drilling, C. P. McGAHA; domestic asphalt, PAUL G. BLAZER; public relations, BURDETTE BLUE; tax policy, E. H. MOORE; membership, RALPH ZOOK; royalty owners, ROBERT E. WOOD. A boating trip down the Ship Canal and a barbecue entertainment by the "Wildcats," of Houston, are among features planned.

PARAGRAPHS

RANDOLPH YOST, of Big Hill, Tex., was elected president of the newly organized Stanolind Texas-Louisiana Gulf Coast Employes' Federation, composed of field employes of the Stanolind Oil & Gas Company. FRANK O. PRIOR, Tulsa, president of Stanolind, went to Houston, Tex., to meet representatives of the new organization, which is similar to the federation formed by employes of the Humble Oil & Refining Company.

W. N. DAVIS, vice president of the Phillips Petroleum Company, has resigned on account of ill health. Mr. Davis, one of the best-known figures in the oil industry, has been active in the American Petroleum Institute, the Independent Petroleum Association of America, the Mid-Continent Oil and Gas Association and other industrial groups. Although his residence was in Bartlesville, Okla., headquarters of the company, most of his time in recent years was spent in Washington, where he watched legislation affecting the oil industry, devoting special attention to interests of the Southwest. His resignation is said to have been submitted a month ago, but its acceptance was delayed in the hope he might find it possible to remain with the company. At the present time he is in the East.

DR. GILBERT W. NOBLE has been appointed assistant professor of petroleum engineering at the Missouri School of Mines, Rolla, Mo., and has assumed his new duties.

J. E. FARRELL, well-known independent oil operator of Fort Worth, Tex., has donated an iron lung to the Fort Worth City-County Hospital to combat encephalitis and spinal meningitis.

DR. CARL C. MONRAD, who has been with the research department of the Standard Oil Company of Indiana as a chemical engineer, has been named associate professor of chemical engineering at Carnegie Institute of Technology, Pittsburgh, Pa.

JAMES CARROLL RIGG has been appointed supervisor of lubrication service in charge of all Stop-Wear marketing for Union Oil Company, succeeding D. L. GUY, who has resigned to accept a position in the automotive equipment field.

F. J. SCHAFER, vice president with 42 years' service; JACK WELLS, sales representative with 31 years' service, and FRANK C. INGRAM, customers department executive with 29 years' service, have retired as employes of Southern California Gas Company.

REX L. DAWSON, land man for the Carter Oil Company, Tulsa, and formerly chief scout, is recovering from a fracture of the right arm suffered in an automobile accident at Coalgate, Okla., last week. MRS. DAWSON was slightly hurt. Mr. Dawson, who is a skilled bridge player, avoided interruption of his game by devising a holder for his cards, to be used until the broken arm is out of the sling.

J. S. FOWLER, of Wooster, Ohio, has moved to Midland, Tex., where he will serve as representative for the S. J. Brendel Oil & Gas Company, Inc., of Pittsburgh, Pa.

F. E. MELOTT, geologist with the Continental Oil Company at Wichita Falls, Tex., has been transferred to the Illinois district and is living in Centralia.

LORD JOHN CADMAN recently opened the Anglo-Iranian Oil Company's new research laboratory building in Sunbury, England, in the presence of SIR GILBERT MORGAN, director of the chemical research laboratory, Teddington; SIR HAROLD HARTLEY, chairman of the fuel research board; PROF. I. M. HEILBRON, PROF. A. O. RANKINE, PROF. FLEMING, DR. M. Y. YOUNG and the members of the company's research staff.

H. L. PAYTON, pipe line scout for the Sun Oil Company, Tyler, Tex., was seriously injured September 7 when his car was sideswiped by a truck which did not stop. He lay in a ditch beside the road for two hours before passing motorists stopped to give aid. He is in a Tyler hospital, where his left arm was amputated.

D. R. GANO, paymaster in the Chicago general offices of the Standard Oil Company of Indiana, has joined the veterans who are receiving annuities provided by the company. Mr. Gano, in the organization's service 45 years, was head of the plant and stable equipment in the days when the big dapple-gray teams were hauling "coal oil" in barrel-wagons, than the regular method of transportation. After serving in various positions, he eventually became a member of the paying-office staff, and he had been head of the department for some time prior to his retirement.

New Post in Richfield

W. T. Dinkins, recently elected vice president of the Richfield Oil Corporation, shortly after having been made general sales manager, was born in Chicago in 1888, later moving to North Carolina. He attended the University of North Carolina, and upon leaving it he joined the Waters-Pierce Oil Company as manager in Oklahoma. In 1917 Mr. Dinkins entered the army. He was commissioned a first lieutenant and later a captain. He saw service overseas where he was gassed and wounded. After his discharge from the army in January, 1919, Mr. Dinkins was appointed assistant to the general sales manager of Sinclair Consolidated Oil Company, with offices in Chicago. He served as division manager in Omaha, Neb., for awhile, then after another year in Chicago he went to Kansas City as manager of the western district. When Sinclair opened activities in the East Mr. Dinkins was sent to New York as manager of the eastern district. Five years later he was appointed assistant to the vice president. When Consolidated took over the Pierce properties in the South and Southwest, Mr. Dinkins moved to St. Louis to direct their operations. He soon combined the operations of the Pierce and Sinclair companies and established headquarters in Fort Worth, Tex. For five years he remained there as manager of the Southwest district, which post he resigned to join Richfield in Los Angeles, Calif.

W. T. DINKINS

J. BRIAN EBY, consulting geologist of Houston, Tex., has returned from a vacation in Baltimore, Md.

G. W. LaPEIRE, formerly chief geologist for the United Fuel Gas Company, Charleston, W. Va., has opened offices at Flora, Ill.

GEORGE W. SCHNEIDER, division geologist for the Texas Company in Shreveport, La., is back from a vacation in Colorado.

O. E. McCLATCHEY, purchasing agent for the Barnsdall Oil Company, Tulsa, left for Colorado and Yellowstone Park to pass several weeks of recreation.

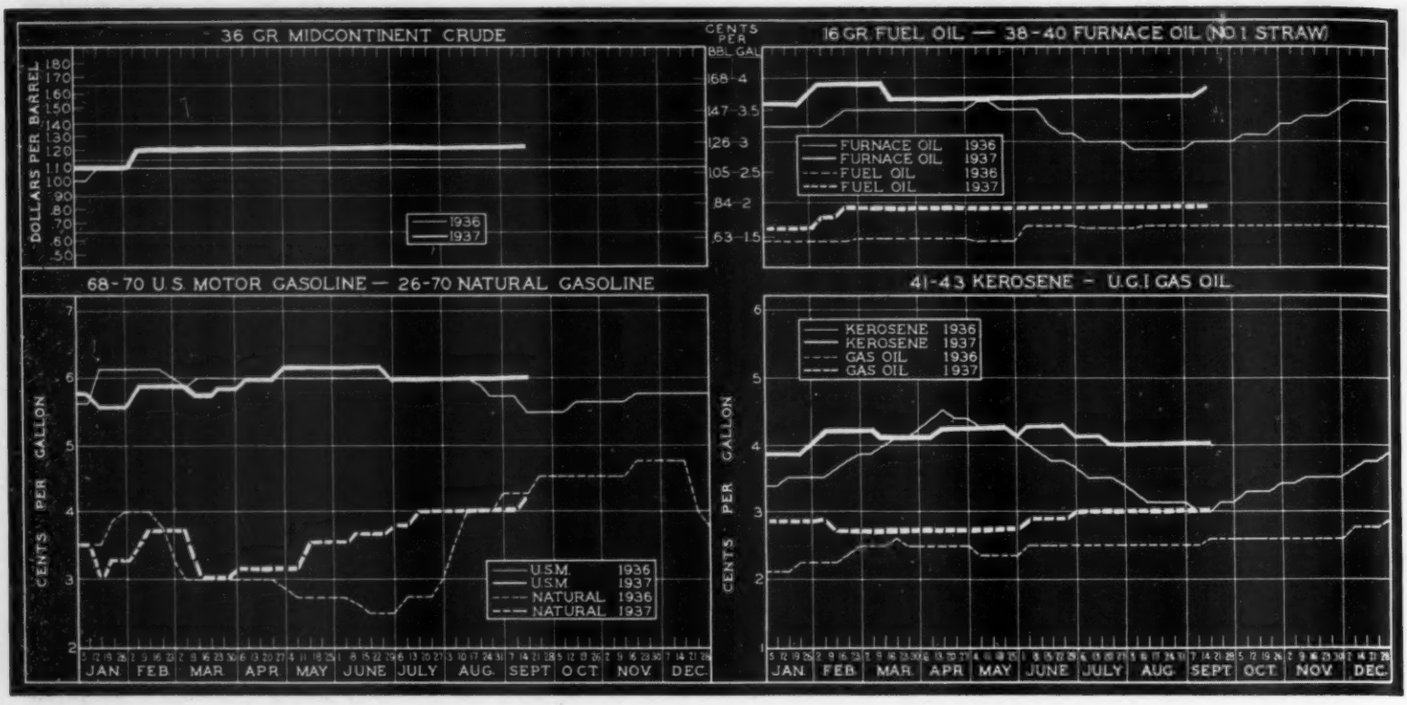
CHARLES COOK, of the Texas Company, Woodville, Tex., was critically injured last week in an automobile accident. He is at the St. Therese Hospital, Beaumont.

W. J. GILLINGHAM, engineer with the Schlumberger Well Surveying Corporation, Houston, Tex., has returned from a three-month vacation visiting his parents in England.

ORION A. DANIEL, former geologist for the King Oil Company, Wichita Falls, Tex., has resigned his position to take up independent work and is in Centralia, Ill., for a short time.

A. L. CARLSON, secretary-treasurer of the Stanolind Crude Oil Purchasing Company and of the Stanolind Pipe Line Company, Tulsa, is spending his vacation in New Mexico.

CHESTER C. CLARK, geologist for the United Gas Public Service Company in Shreveport, La., has returned from a vacation spent in West Texas. PHILLIP MORRIS, land man for the same company, is on vacation.



Representative Mid-Continent Quotations on Crude Oil and Refined Products, Basis Oklahoma (Group 3)

Group 3 Gasoline Market Unsteady as Naturals Rise One-Fourth Cent

By D. H. STORMONT

While gasoline continued to move in a seasonally satisfactory volume, there was a noticeable softening in the Group 3 tankcar gasoline market this week, although quotations were unchanged from those of the previous week. A number of sales, however, were reported to have been made at prices one-eighth cent below those quoted. This weakness is generally attributed to too much gasoline in storage and the complementing factor, crude runs being held at too high a level.

Gasoline Stocks

Gasoline stocks have not declined as fast as many refiners and marketers earlier in the year hoped they might; or to a point sufficiently low to withstand the accumulations accompanying the season of slackened demand unless crude runs are curtailed. Total stocks held by refiners in the United States now exceed those of a year ago by over 9,000,000 bbls. whereas at the first of August they were only slightly over 7,000,000 bbls. higher, according to A.P.I. figures. The apparent explanation of this situation is excessive runs to stills, as is brought out when runs for the past year are studied. During May, June, July and August of 1936 runs were held at much the same levels or somewhere near the 2,900,000-bbl. mark. This year daily runs were increased by about 300,000 bbls. during this four-month period.

In the Mid-Continent daily crude runs and stocks of gasoline have followed practically the same trend as the United States total figures. Stocks are now 1,400,000 bbls. higher than at this time in 1936 and daily crude runs bordering on and exceeding the 600,000-bbl. mark. Estimates at the first of the month indicate that the high rate of refining activity will be maintained throughout September. If so, stocks may begin a premature increase.

Natural gasoline, after marking time for several weeks, moved up one-fourth cent to a flat 4¼ cents in Oklahoma and 4⅜ cents in North Texas for the 26-70 grade, and did not seem to be affected by the weakness in the motor fuel market. Demand for natural gasoline, both interior and for movement to the Gulf Coast has been picking up as refiners shop for fall requirements.

The normal increased consumption of natural gasoline and the increased use of this material to blend into a more volatile fuel has placed a heavy burden on the natural gasoline manufacturer. Production in the first seven months of this year exceeded that in 1936 by an average of 767,000 gallons daily, yet total stocks of natural gasoline on July 31 were only some 738,000 bbls. higher than on July 31, 1936. Manufacturers drew heavily on their stocks in August, and at the present juncture it looks as though stocks at the end of September might be even more comparable with those of the previous year.

Heating Oils Active

The heating oils continued to be outstanding performers of the refined oil markets. Kerosene, especially in East Texas and North Louisiana, is in a healthy market position. East Texas was reported practically cleaned out following large shipments to the Gulf for export movement. Also domestic shipments were considerably higher in the past few weeks.

The whole range of furnace oils was strong and stocks of these materials tightly held. Many refiners are storing their oils, expecting higher prices in the future. Although demand remained substantial, some buyers were reported to be temporarily out of the market for furnace oils feeling that it was becoming too much of a sellers' market and their continued efforts to obtain material might force prices higher. Lubricants were moving in satisfactory volume at unchanged prices as a somewhat heavier export demand gave them added strength. Wax remained firm and gas oil and fuel oil in good demand.

Refined Oil Market Barometer

Overheavy gasoline stocks continue to exert a weakening influence on tankcar markets with retail markets remaining unsettled in Eastern and Middle West marketing centers. Natural gasolines and heating oils exhibiting increased firmness as they move into their season of greatest demand. An increased foreign demand is aiding coastal lubricant and gasoline markets.

MID-CONTINENT. Gasoline unsteady. Naturals buoyant. Burning oils gaining strength.

EAST COAST. Retail gasoline unsettled. Furnace oils strong. Lubricants steady.

GULF COAST. Gasoline and kerosene firm. Burning oils tight.

CALIFORNIA. Gasoline steady. Fuel oils and gas oils stronger.

PENNSYLVANIA. Kerosene and fuel oils firm. Lubricants weak.

CHICAGO. Retail gasoline unsettled. Domestic fuels tight. Kerosene firm.

Fall Season Arrives Without Material Change in Gasoline Price Level

By H. STANLEY NORMAN

NEW YORK, Sept. 13.—Seasonally cool weather, starting with the Sunday before Labor Day, signalled the close of the heavy gasoline consuming period, and brought the eastern marketing trade to the realization that a favorable price trend from now on will depend largely on degree of wisdom used by the trade in regulating production schedules, as well as inventories. The Labor Day weekend was notably helpful despite unfavorable weather conditions during Sunday and Monday, due to the fact that Friday and Saturday were terrifically hot along the Atlantic Seaboard and all who could do so scurried to mountain or shore retreats. In other words the exodus of motorists already had occurred before the cooler wave had arrived.

The fall season seems to have arrived without any material change in the gasoline price level, either wholesale or retail, and without any indication of an early change. Of course the eastern trade is looking forward to some more warm weather and is not disposed to force material on the markets at concessions. Jobbers and retailers seem to be none too well stocked, although refiners undoubtedly have ample supplies on hand.

Available statistics indicate, however, that stocks of finished and unfinished gasoline along the Atlantic Coast were reduced during the entire summer season only by a small margin. This would cause some apprehension were it not for the fact that the figures include gasoline in pipe lines which represents a relatively new factor in the situation on the eastern seaboard. The amount of gasoline needed to maintain an uninterrupted flow in the major gasoline pipe line systems now operating runs into very large figures. Incidentally, further expansion of these lines is in progress and will be completed before the summer of 1938.

New York gasoline jobbers and retailers report continued keen competition for gallonage with consequent price unsettlement, but this is no more prevalent than a week ago, when a number of stations were reported offering gasoline as low as 90 cents for 6 gallons. The principal source of competition, however, is said to be beneath the surface and does not show itself in the form of price cutting. This competition is among the larger marketers seeking to control the more advantageous service station sites in the metropolitan area. One of the largest stations, for instance, recently changed hands, causing considerable commotion among rival sales forces. It seems to be the growing impression that the control of these better-located stations is desired not only for the amount of gallonage which they assure, but also for the income from oil and grease sales and from the various services rendered. Hence, the highly competitive situation may not indicate any underlying weakness in the gasoline market directly.

Executives of the larger oil companies marketing in this section seem unruffled by reports current that a substantial business recession is in the offing. They feel themselves to be in a position which calls for greater anxiety with reference to the supply than to the demand. In other words, they have been watching the crude oil production statistics closely and believe that with only a moderate decrease from recent peak levels the crude oil and refined oil price structure will hold. Furthermore, they feel that with world consumption definitely headed skyward, aside from relatively unimportant minor interruptions, their principal responsibility is that of protecting the consumer against a future shortage of gasoline. This, again, is due not so much to worry over underground reserves of crude oil as to the increasing consumption of fuel oils, from kerosene down to Bunker C fuel oil. Naturally this fuel takes a certain percentage of the crude which might, by special treatment, go into gasoline. Hence the marketers are beset with technical problems, which they regard as even more urgent than the current price status.

In connection with fuel oil, the most important feature at the present season of the year is furnace oil. It is true most contracts covering the 1937-38 requirements have been closed, but there are many new users coming in at this season, more than in previous years. Persistent reports have been heard of price concessions in the furnace oil market, and these have seeped through to prospective customers desirous of taking advantage of them. The principal marketers, however, insist that such reports are exaggerated and are making only firm offerings. Nevertheless, the situation is rather critical, in as much as the furnace oil price level is considerably above that at which contracts could be closed three or four months ago. This higher level is being used to somewhat good advantage by the coal interests as an argument for coal-burning.

That there is no real weakness in the furnace oil market is indicated by the report that one major company had been actively buying additional material from small refiners, going so far as to offer to take the entire output of one of the lesser organizations. At the same time cargo lots at the Gulf Coast have become scarce, while the tanker market itself has been stiffening in the past few days. In fact it is now difficult to obtain fixtures on time without paying rates largely in excess of the single-trip figure as applied to fuel oil or crude oil boats. The Gulf-to-Atlantic Seaboard tanker market is usually a fairly good index of the activities of the cargo market for refined oil and the scarcity of ships would be apt to reflect more than anything a dearth of cargo offerings of refined oils at the Gulf. One or two cargoes of No. 2 fuel oil which were reported available a week ago are now said to have been withdrawn with the owners negotiating for their sale as part of a long-term contract.

The probability is that if any material weakness should develop in the furnace oil or fuel oil market, it will not come until the end of this year. By that time marketers will have a better line on the seasonal demand as well as on the supply situation. Large sellers are still posting 7½ cents per gallon for No. 2 oil. No additional sales in tankcars at 6½ cents have been reported, and it is believed the volume of business transacted previously at this level was small. Occasional sales below the market do not cause any perceptible worry on the part of the trade.

The lubricating oil trade has been somewhat unsettled by reductions in the Pennsylvania crude oil market, but posted prices have not been shaded as yet, so far as could be learned. Marketers are in the present position of waiting to learn the significance of the crude price cuts. Certainly the demand for lubes has been all that could be expected, and refiners and jobbers are reluctant to believe the weakness in crude is more than temporary, regarded as

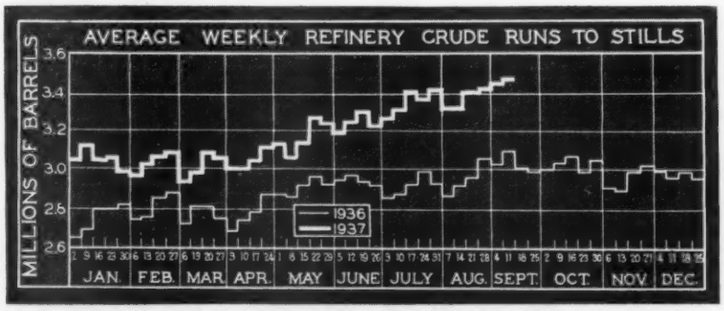
(Continued on Page 296)

A. P. I. Weekly Refinery Statistics

Week Ending September 11, 1937

	Capacity reporting (per cent)	Daily crude runs (bbls.)	Total gasoline stocks	Gas oil and fuel oil stocks
East Coast	100.0	577,000	18,884,000	14,636,000
Appalachian	88.4	111,000	2,570,000	898,000
Indiana, Illinois, Kentucky	92.4	445,000	10,624,000	7,170,000
Oklahoma, Kansas, Missouri	84.7	327,000	6,179,000	3,636,000
Inland Texas	56.6	139,000	1,746,000	1,824,000
Texas Gulf	95.5	739,000	7,575,000	10,398,000
Louisiana Gulf	96.6	162,000	1,789,000	3,115,000
North Louisiana and Arkansas	63.7	44,000	409,000	394,000
Rocky Mountains	69.7	49,000	1,313,000	774,000
California	90.9	565,000	11,777,000	68,541,000
Total reported	88.9	3,158,000	62,866,000	111,386,000
Estimated unreported	.....	297,000	3,590,000	3,280,000
*Estimated total	.....	3,455,000	66,456,000	114,666,000
*Estimated total previous week	.....	3,445,000	67,048,000	113,443,000
*September 12, 1936	.....	3,095,000	57,918,000	113,109,000

*Bureau of Mines, currently estimated.



Stocks of Crude Oil in the United States

(BUREAU OF MINES ESTIMATES)

Week ending August 28, 1937	309,506,000 bbls.
Week ending August 21, 1937	309,699,000 bbls.
Week ending August 29, 1936	302,055,000 bbls.

RETAIL OIL MARKETS

Tank-wagon and filling station prices on gasoline and kerosene furnished by the larger marketing firms

Prices as of September 14, 1937

Taxes

The gasoline quotations given in the following tables include the 1-cent federal tax, as well as state, county and city taxes. The gasoline is the regular or standard grade. In most areas a third grade and a premium grade are also available.

Standard Oil Co. (Indiana)

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Chicago, Ill.	15.5	13.5	4.0	10.1
Decatur	15.5	14.0	4.0	10.1
Joliet	15.5	14.0	4.0	10.1
Peoria	15.5	14.0	4.0	10.1
Quincy	15.3	13.8	4.0	9.9
Davenport, Ia.	15.5	14.0	4.0	‡13.1
Des Moines	15.3	13.8	4.0	‡12.9
Mason City	15.7	14.2	4.0	‡13.3
Sioux City	15.5	14.0	4.0	‡13.1
Duluth, Minn.	17.3	15.8	5.0	10.3
Mankato	16.9	15.4	5.0	10.5
Twin Cities	16.9	15.4	5.0	10.5
Lacrosse, Wis.	16.9	15.4	5.0	10.5
Green Bay	17.2	15.7	5.0	10.8
Milwaukee	16.8	15.3	5.0	10.4
Detroit, Mich.	15.4	13.9	4.0	9.8
Grand Rapids	16.5	15.0	4.0	10.9
Saginaw	16.3	14.8	4.0	8.5
Evansville, Ind.	17.0	15.5	5.0	†10.6
Indianapolis	17.2	15.7	5.0	†10.8
South Bend	17.4	15.9	5.0	†9.6
Fargo, N. Dak.	16.9	15.4	4.0	11.5
Minot	18.1	16.6	4.0	12.7
Huron, S. Dak.	17.3	15.8	5.0	10.9
Kans. City, Mo.*	14.9	13.4	4.0	8.0
St. Louis*	15.2	13.7	4.0	9.8
St. Joseph*	14.9	12.4	4.0	8.5
Wichita, Kans.	14.4	12.9	4.0	8.0

*State tax 2 cents, 1-cent city tax and 1-cent federal tax. †Does not include 4-cent state tax. ‡Iowa kerosene prices include 3-cent state tax.

(Exclusive of state general sales taxes, except Indiana and South Dakota.)

Discounts to commercial consumers: On purchases per month off tank-wagon prices: 1,000 gallons or more, 1.5 cents off; minimum delivery 25 gallons.

Stanolex Fuel Oil in Chicago

Effective Dec. 7, 1936, f.o.b. Chicago tank-wagon prices: Range oil, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.3 cents. Stanolex No. 1, 1-99 gallons, 8.8 cents; 100-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex furnace oil, 1-149 gallons, 7.8 cents; 150 gallons and over, 7.0 cents. Stanolex A, 1-399 gallons, 5.75 cents; 400 gallons and over, 4.75 cents. Stanolex B, 1-799 gallons, 5.75 cents; 800 gallons and over, 4.75 cents.

Atlantic Coast District

STANDARD OIL CO. OF NEW JERSEY

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Atl'tic City, N. J.	13.5	12.0	4.0	9.0
Newark	13.5	12.0	4.0	9.0
Annapolis, Md.	15.6	14.1	5.0	9.5
Baltimore	15.0	13.5	5.0	9.0
Cumberland	17.4	14.9	5.0	10.0
Wash'g'n, D. C.*	12.5	11.0	3.0	9.5
Danville, Va.	18.2	15.7	6.0	12.9
Norfolk	17.0	14.5	6.0	11.5
Petersburg	17.3	14.8	6.0	11.7
Richmond	17.3	14.8	6.0	11.7
Roanoke	18.5	16.0	6.0	12.9
Charles'n, W. V.	17.8	15.3	6.0	12.6
Parkersburg	17.1	14.6	6.0	11.2
Wheeling	17.0	15.5	6.0	12.2
Charlotte, N. C.	19.4	16.9	7.0	12.6
Hickory	19.9	17.4	7.0	13.0
Mt. Airy	19.7	17.2	7.0	12.8
Raleigh	19.0	16.5	7.0	12.1
Salisbury	19.5	17.0	7.0	12.7
Charleston, S. C.	18.0	15.5	7.0	11.1
Columbia	19.0	16.5	7.0	12.1
Spartanburg	19.7	17.2	7.0	12.9

*Standard of N. J. has discontinued posting service-station prices at all above points except at Washington and Baltimore where station prices of 16.0 and 18.5 cents, respectively, are in effect.

Price basis to commercial consumers, effective March 8, 1937, in Maryland, District of Columbia, and in Arlington and Fairfax counties in Virginia; and March 13 in New Jersey: To contract accounts purchasing at least one full compartment at time by hose connection, on yearly purchases: From 2,500 to 100,000 gallons, consumer tank-wagon price at time and place of delivery; 100,000 gallons per year, consumer tankcar price plus .5 cent per gallon. Consumer tank-wagon price generally will be equivalent to dealer tank-wagon price less .5 cent per gallon.

Effective May 15, 1937, in North and South Carolina, West Virginia and Virginia (except Arlington and Fairfax counties): Commercial consumers taking deliveries of 50 gallons (W. Va., 100 gallons) or more at one time will be billed at posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons (W. Va., 100 gallons) will be billed at 4 cents per gallon over posted consumer tank-wagon price. Generally the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Discount for kerosene, 1 cent off tank-wagon price for 25 gallons or more under contract (contract not necessary in Baltimore) except no discount in New Jersey.

Southern District

STANDARD OIL CO. OF KENTUCKY

	Gasoline			Kero.
	Tank wag.	Net dlr.	Inc. tax	tank-wag.
Atlanta, Ga.	22.0	19.0	7.0*	†12.0
Augusta	21.0	18.0	7.0	*14.0
Macon	21.5	18.5	7.0	*14.5
Savannah	19.0	16.0	7.0	*12.0
Birm'ham, Ala.	22.0	19.0	8.0	12.0
Mobile	20.0	17.0	9.0	11.0
Montgomery	22.0	19.0	9.0	14.5
Jackson, Miss.	21.0	18.0	7.0	*13.0
Vicksburg	20.5	17.5	7.0	*13.0
Jacksonville, Fla.	20.5	17.5	8.0	†10.0
Miami	20.5	17.5	8.0	†11.5
Pensacola	22.0	19.0	9.0	12.0
Tampa	20.0	17.0	8.0	10.5
Lexington, Ky.	20.0	17.0	6.0	11.0
Covington	19.5	16.5	6.0	11.0
Louisville	20.0	17.0	6.0	10.5
Paducah	20.0	17.0	6.0	10.0

Price basis to tank-wagon consumers: Effective January 4, 1937, 3 cents per gallon below tank-wagon price. Kerosene prices in all states subject to 2 cents discount except in Kentucky where prices are net.

*Includes 1-cent state tax. †Subject to 2-cent discount.

Montgomery, Ala., has a county tax of 1 cent per gallon, and a city tax of 1 cent per gallon on gasoline, in addition to state tax; and 1 cent per gallon on kerosene. Mobile, Ala., has a city gasoline tax of 2 cents per gallon; Birmingham, Ala., has a city gasoline tax of 1 cent per gallon; Pensacola has a city gasoline tax of 1 cent.

Rocky Mountain District

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Denver, Colo.	17.5	5.0	11.5
Grand Junction	20.0	5.0	15.0
Pueblo	16.0	5.0	10.5
Casper, Wyo.	18.0	5.0	11.5
Cheyenne	18.0	5.0	13.0
Butte, Mont.	19.5	6.0	15.5
Billings	21.0	6.0	15.5
Helena	21.5	6.0	15.5
Great Falls	21.5	6.0	15.5
Salt Lake, Utah	19.5	5.0	16.0
Twin Falls, Ida.	21.5	6.0	18.0
Boise	21.5	6.0	18.0
Albuquerque, N. M.	17.5	6.5	12.0

Ohio

STANDARD OIL CO. OF OHIO

	Gasoline			Kero.
	Tank wag. con'r.	Di-vided dlr.	Inc. tax	tank-wag.
Ohio points	17.0	16.0	5.0	*13.5

*Includes state tax of 1 cent.

Discounts to commercial consumers, contract: Effective Aug. 12, 1937, for Ohio state-wide, 20,000 gallons or over per month, 1 cent per gallon off commercial consumer tank-wagon price. Tank-wagon price is price to commercial consumers in deliveries of 25 gallons or more; less than 25 gallons gets service-station price. Price to undivided dealers is same as to commercial consumers.

Nebraska

STANDARD OIL CO. OF NEBRASKA

	Gasoline			Kero.
	Tank wag.	Dlr.	Inc. tax	tank-wag.
Omaha	17.9	16.4	6.0	10.4
McCook	18.0	17.1	6.0	10.0
Norfolk	18.3	16.8	6.0	10.8
North Platte	18.7	17.2	6.0	11.2
Scotts Bluff	19.4	15.9	6.0	11.9

Discounts to commercial consumers for tank-wagon deliveries covered only by standard commercial consumers contract, effective Jan. 1, 1935.

Pacific Coast Territory

STANDARD OIL CO. OF CALIFORNIA

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
San Francisco	17.5	18.5	4.0	11.5
Los Angeles	17.0	18.0	4.0	9.0
Fresno, Calif.	18.5	19.5	4.0	12.0
Phoenix, Ariz.	21.0	22.0	6.0	‡16.0
Reno, Nev.	20.0	21.0	5.0	13.0
Portland, Ore.	20.0	21.0	6.0	13.5
Seattle, Wash.	20.0	21.0	6.0	13.5
Spokane	23.0	24.0	6.0	16.5
Tacoma	20.0	21.0	6.0	13.5

‡Includes 5-cent state tax.

Discounts to dealers: On gasoline, off tank-wagon price, to 100 per cent dealers, 3 cents; to split dealers, 2 cents. To commercial consumers: on tank-wagon price: on single deliveries of 40 gallons and over, advance quantity discount extended at time of delivery, 3 cents. Service station schedule applies on single deliveries less than 40 gallons. On kerosene in tankcar, transport truck and trailer delivery, 3 cents off tank-wagon price; plant deliveries to jobbers, 2.5 cents below tank-wagon.

New York and New England

SOCONY-VACUUM OIL CO., INC.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Albany, N. Y.	15.0	13.5	5.0	9.0
*Met. N. Y.:				
Manh't'n, Br'nx	15.0	13.5	5.0	9.0
Staten Island	15.0	13.5	5.0	9.0
Q'ns & Brklyn	15.0	13.5	5.0	9.0
Buffalo	15.8	14.04	5.0	8.5
Rochester	15.3	13.92	5.0	8.5
Syracuse	15.5	14.12	5.0	9.5
Boston, Mass.	12.5	13.5	4.0	8.5
Portland, Me.	15.8	13.5	5.0	8.75
Manch'ter, N. H.	16.3	14.0	5.0	9.5
Burlington, Vt.	15.9	13.9	5.0	9.5

*Does not include 2 per cent city sales tax which is calculated on basis of net retail price exclusive of state and federal taxes.

Price basis to undivided dealer: Posted dealer tank-wagon price less .5 cent. Price basis to commercial consumer: Effective Nov. 15, 1936, monthly purchases of 25,000 gallons and over, consumer tankcar prices at delivery point plus .5 cent per gallon; monthly purchases of 5,000 to 25,000 gallons, undivided dealer price at delivery point: Monthly purchases under 5,000 gallons, pay divided dealer tank-wagon price at delivery point.

Oklahoma and Arkansas

CONTINENTAL OIL CO.

	Gasoline		Kero.
	Dealer	Inc. tax	tank-wag.
Muskogee, Ok.	15.0	5.0	7.0
Oklahoma City	14.0	5.0	8.0
Tulsa	14.0	5.0	7.0
Ft. Smith, Ark.	15.5	5.0	10.0
Little Rock	18.0	7.5	9.5
Texarkana	15.5	5.0	8.5

Texas

	Gasoline			Kero.
	Tank wag.	Serv. sta.	Inc. tax	tank-wag.
Dallas, Tex.	14.0	18.0	5.0	8.0
Fort Worth	14.0	18.0	5.0	8.0
Houston	14.5	18.5	5.0	8.0
San Antonio	14.5	18.5	5.0	8.0

Central South District

STANDARD OIL CO. OF LOUISIANA

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
N. Orleans, La.	20.5	18.0*	10.0	†13.0
Baton Rouge	18.5	16.0	8.0	12.0
Alexandria	19.0	16.5	8.0	12.0
Lafayette	19.5	17.0	8.0	13.0
Lake Charles	19.5	17.0	8.0	12.5
Shreveport	18.0	15.5	8.0	9.5
Knoxville, Tenn.	21.5	19.0	8.0	14.0
Memphis	19.5	17.0	8.0	12.0
Chattanooga	21.0	18.5	8.0	13.5
Nashville	20.5	18.0	8.0	11.0
Bristol	20.25	19.0	8.0	14.5

*Includes 2-cent parish tax. †Includes 1-cent parish tax and 1-cent state tax.

Standard of La. has transferred all stations to dealers except in New Orleans and Baton Rouge where station prices are 24 and 22 cents per gallon, respectively.

Price basis to commercial consumers: Effective May 15, 1937, deliveries of 50 gallons or more in one delivery takes posted consumer tank-wagon price. Accounts taking deliveries of less than 50 gallons at one time pay posted consumer tank-wagon price plus 4 cents per gallon. Generally, the posted consumer tank-wagon price will be equivalent to the dealer price less .5 cent per gallon.

Louisiana kerosene prices include 1-cent state tax.

Pennsylvania, Delaware and Part of New England

ATLANTIC REFINING CO.

	Gasoline			Kero.
	Tank wag. dlr.	Tank car con'r.	Inc. tax	tank-wag.
Philadelphia, Pa.	14.5	13.0	5.0	10.5
Pittsburgh	15.5	13.5	5.0	11.0
Allentown	15.0	13.5	5.0	11.0
Erie	14.5	13.0	5.0	10.0
Scranton	15.0	13.5	5.0	11.0
Altoona	15.5	13.5	5.0	11.0
Dover, Del.	14.5	....	5.0	11.0
Wilmington	14.5	....	5.0	11.0
Springf'd, Mass.	14.3	....	4.0	9.0
Worcester	14.8	....	4.0	9.0
Hartford, Conn.	14.6	....	4.0	9.0
New Haven	14.0	....	4.0	9.0
Providence, R. I.	14.0	....	4.0	8.8

Price basis to undivided dealers, dealer tank-wagon price less .5 cent per gallon. Price basis to commercial consumers in Pennsylvania and Delaware, effective March 11, 1937: Consumers under contract using 100,000 gallons or more per year full compartment hose deliveries, tankcar plus .5 cent. Consumers under contract using less than 100,000 gallons per year compartment hose deliveries, undivided dealer price. Consumers under contract less than full compartment delivery, consumers not under contract less than full compartment delivery, and consumers not under contract full compartment delivery, divided dealer price. Less than 25 gallons, tank-wagon delivery, 4 cents per gallon above undivided dealer price.

Naphtha

STANDARD OIL CO. (INDIANA)

	Tank-wagon*
Oleum spirits	15.7
V.M.&P. naphtha	16.0
Cleaners' naphtha	15.0
Stanisol	15.0

*Prices include 3-cent Illinois tax, but not 1-cent federal tax or 2 per cent retail occupational tax.

Prices f.o.b Chicago. Each price subject to discount of 1 cent per gallon for 150 gallon lots if covered by contract.

Canada*

3 Star Imperial Gasoline
IMPERIAL OIL, LTD.

	Tank-wag.	Inc. tax	Kero. tank-wag.
Halifax, N.S.	24.0	8.0	18.8
St. John, N.B.	24.0	8.0	18.8
Montreal, Que.	21.0	6.0	17.5
Toronto, Ont.	22.0	6.0	17.0
Hamilton, Ont.	22.0	6.0	17.0
Winnipeg, Man.	28.2	7.0	20.7
Brandon, Man.	29.8	7.0	22.3
Regina, Sask.	29.5	7.0	22.0
Saskatoon, Sask.	32.3	7.0	24.8
Edmonton, Alta.	29.5	7.0	24.2
Calgary, Alta.	27.0	7.0	21.5
Vancouver, B.C.	23.0	7.0	23.0

*Imperial gallon used in Canada.

Divided dealers pay tank-wagon price. Discount to undivided dealers, 1 cent below tank-wagon price. In maritime provinces both divided and undivided dealers pay tank-wagon prices.

New York Market

(Continued from Page 295)

more in the nature of a warning. One feature of the lubricating oil situation is that export business is a shade hesitant. This is taken to reflect a seasonal lull in the normal course of the trade, rather than any special development.

Lubricating oil and wax prices for the most part held steady during the past week, reflecting confidence in the outlook both on the Atlantic Seaboard and in the Pennsylvania district.

In the export division, the chief feature in the market is the increasing interest displayed by German buyers in the lubricating oil market, as well as in certain fuel oils. Export prices generally were unchanged during the week.

PRICES OF REFINED PRODUCTS

All quotations f.o.b. plant in cars for interstate or export movement except as otherwise noted

Prices as of September 14, 1937

The following quotations are exclusive of the federal excise taxes of 1 cent a gallon on gasoline and 4 cents on lubricating oils.

Refinery Gasoline

OKLAHOMA (Group 3)—

U. S. Motor grades:		
62 oct. and below (3d gr.)		.05
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.06
60-62 400 grades:		
62 oct. and below (3d gr.)		.05
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.06
64-66 375	.05	.05¼
68-70 360	.05⅛	.05⅜

NORTH TEXAS—

U. S. Motor grades:		
62 octane and below		.05
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)		.06
60-62 400		.05
64-66 375	.05	.05¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

U. S. Motor grades:		
62 octane and below		.05½
63-66 octane	.05¾	.06
67-69 octane	.06⅛	.06⅜
70-72 octane (regular)		.06½

ARKANSAS (Ark., N. La., Miss. del.)—

U. S. Motor grades:		
62 octane and below		.05½
63-66 octane		.06
67-69 octane	.06⅛	.06⅜
70-72 octane (regular)		.06½

CHICAGO (Based on Group 3)—

U. S. Motor grades:		
62 octane and below	.05	.05⅛
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)	.06	.06⅛
60-62 400 grades:		
62 octane and below	.05	.05⅛
63-66 octane	.05⅜	.05½
67-69 octane	.05⅝	.05⅞
70-72 octane (regular)	.06	.06⅛
64-66 375	.05	.05¼
68-70 360	.05⅛	.05⅜

PENNSYLVANIA (inland refineries)—

58-60 U. S. Motor:		
Below 60 octane	.06	.06⅛
60-64.9 octane	.07⅜	.07⅝
65-70 octane	.07½	.07¾
64-66 375	.06½	.06¼
68-70 350	.06¼	.06⅜

CALIFORNIA (domestic movement)—

54-58 U. S. Motor	.07½	.08½
58-60 400, 65 oct. and higher	.08¼	.09¼

EAST COAST (domestic)—

U. S. Motor below 60 octane:		
*New York (Bayonne)		.07¼
Baltimore		.07¼
U. S. Motor, 60-64.9 octane:		
*New York (Bayonne)	.07½	.07¾
Philadelphia	.07½	.07¾
Boston		.07¾
Baltimore	.07½	.07¾
Charleston, S. C.		.07¾
U. S. Motor, 65 and above:		
*New York (Bayonne)	.08	.08½
Philadelphia	.07¾	.08¼
Boston	.08	.08½
Baltimore		.08
Charleston, S. C.		.08

*All grades of gasoline one-eighth to one-fourth cent less for barge shipments. New York harbor prices are for New York and New England delivery. Prices for New Jersey delivery one-fourth cent lower.

GULF COAST (domestic)—

U. S. Motor grades:	
Below 60 octane	.06⅛
60-64.9	.06¼
65 octane and higher	.06½

Naphtha

PENNSYLVANIA (inland refineries)—

50-52 450 (blending)	.05¾	.06
52-54 450 (blending)	.05¾	.06
54-56 450 (blending)	.05⅞	.06⅛

Natural Gasoline

OKLAHOMA (Group 3)—

Grade 26-70		.04¼
Grade 18-55	.05	.05⅛

NORTH TEXAS—

Grade 26-70		.04¾
Grade 18-55	.05⅛	.05¼

CALIFORNIA—

75-85 375-390	.06¾	.07½

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

Grade 26-70	.04½	.04⅝

Tractor Fuel

OKLAHOMA (Group 3)—

40-42 gr., 315-325 l.b.p., 110 flash, 540-550 e.p.	.04	.04¼
41-43 gr., 300-350 l.b.p., 110-125 flash, 500-520 e.p.	.04⅜	.04⅝
46-48 gr., 210-230 l.b.p., 480 max. e.p.	.04¾	.04⅞

Kerosene

(All kerosene water white)

OKLAHOMA (Group 3)—

41-43	.04	.04¼
42-44	.04¼	.04½

NORTH TEXAS—

41-43	.04⅛	.04¼

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

41-43		.04⅝

ARKANSAS (Ark., N. La., Miss. del.)—

41-43		.04¾

PENNSYLVANIA (inland refineries)—

45	.05⅛	.05¼
46	.05¼	.05⅜
47	.05⅝	.05½

CHICAGO (Based on Group 3)—

41-43	.04	.04¼
42-44	.04¼	.04½

CALIFORNIA (Pac. Coast market)—

38-43 high burning test	.04¾	.06

NEW YORK (Bayonne, N. J.)—

41-43	.05½	.05¾

***GULF COAST (domestic)—**

41-43	.05⅛

*Barge price one-eighth cent lower.

Furnace Oil

OKLAHOMA (Group 3)—

No. 1 prime white, 38-42	.03⅞	.04
No. 1 straw, 38-40	.03¾	.03⅞
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03⅜	.03½
No. 3 zero to 15, 28-32	.03⅛	.03⅜
No. 3, 15 and above, 28-32	.02⅝	.02¾

NORTH TEXAS—

No. 1 prime white, 38-42		.04
No. 1 straw, 38-40	.03⅝	.03¾

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

No. 2, 32-36	.03½	.03⅝

ARKANSAS (Ark., N. La., Miss. del.)—

No. 2, 32-36		.03⅝

CHICAGO (Based on Group 3)—

No. 1 prime white, 38-40	.03⅞	.04
No. 1 straw, 38-40	.03⅝	.03¾
No. 2 straw, 32-36	.03½	.03⅝
No. 2 dark, 32-36	.03¼	.03⅜
No. 3, zero to 15, 28-32	.03⅛	.03⅜
No. 3, 15 and above, 28-32	.02¾	.03

NEW YORK (Bayonne, N. J.)—

*No. 1		.05¾
*No. 2	.05⅜	.05⅝
*No. 4	.05⅛	.05⅜

*Barge deliveries one-eighth to one-fourth cent under above tankcar price.

Gas Oil and Fuel Oil

(Gas oil per gal.; fuel oil per bbl.)

OKLAHOMA (Group 3)—

U.G.I. gas oil	.03	.03¼
No. 4, low cold test, 24-28	1.05	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
Below 18 fuel oil, industrial	.80	.85

NORTH TEXAS—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.05	1.12½
No. 5, low cold test, 18-22	.85	.90
Below 18 fuel oil, industrial	.80	.85

NORTH LOUISIANA (Ark., N. La. and Miss. delivery)—

10-14 fuel oil, industrial	.80	.85

CHICAGO (based on Group 3)—

U.G.I. gas oil	.03	.03⅛
No. 4, low cold test, 24-28	1.07½	1.12½
No. 4, 15 and above, 24-28	.90	.95
No. 5, low cold test, 18-22	.85	.90
No. 6, low cold test, 10-16	.80	.85

PENNSYLVANIA (inland refineries)—

36-40	.04⅜	.04½

CALIFORNIA—

Los Angeles:		
30-34 gas oil, per bbl.	1.25	1.40
24 plus diesel, per bbl.	1.15	1.40
24 plus diesel (bunkers)	1.55	1.65
12-16 (bunkers at tidewater)	1.05	1.20
10-16 (cargo lots)	.90	1.15
12-17 (tankcars)	1.00	1.15
10-17 (high sulfur)	.55	.95
San Joaquin Valley:		
10-18 (tankcars)	.75	1.00
24 plus diesel, per bbl.	1.30	1.50
San Francisco:		
27 plus diesel		1.50
24 plus diesel (bunkers)		1.70
10-16 (bunkers)		1.20

GULF COAST—

28-30 gas oil	.04¼	.04⅜
28-30 diesel (bunkers)		1.90
Bunkers (bulk cargoes)		.90
Bunker C (bunkers)		1.05

NEW YORK (Bayonne N. J.)—

27 plus, gas oil		.04¾
28-30 diesel (lighterage 6¼c per bbl.)		2.20
28-30 diesel (tankcars)		.05
Bunker C (to ocean-going ships in N. Y. harbor)	1.35	1.50
Industrial fuel (tankcars)		.04½

Lighterage charge 5c bbl. additional.

Bright and Steam Refined

OKLAHOMA (Group 3)—

Bright Stocks:		
190-200 D, 15-25		.21
150-160 D, 0-10		.18
150-160 D, 15-25		.17½
150-160 E, 15-25		.17
100-110 D, 0-10		.16
Steam refined:		
631 green (treated)		.16
600 dark green (untreated)		.05

PENNSYLVANIA—

Bright Stocks (Pennsylvania Grade No. 8 color, 145-50 at 210, 545-550 flash):

10 pour test	.23	.23½
15 pour test	.22	.22½
20 pour test	.21	.21½
25 pour test	.20	.20½
Steam refined:		
600	.13½	.14
650	.16½	.17
600 Pennsylvania flash	.17½	.18
630 flash	.21½	.22
600 Warren E filtered	.17½	.18

Neutral Oil

(Vis. at 100° F. except Pennsylvania and color N.G.A.)

OKLAHOMA (Group 3)—

Zero to 10 Cold Test:	
150-3	.09
180-3	.10
180-4	.09½
200-3	.10½
200-4	.10
250-3	.11½
250-4	.11
280-3	.12½
280-4	.12
300-3½	.13
400-3½	.14
100-2½ paraffin oil	.06
15-20 Cold Test:	
200-3	.10
200-4	.09½
250-3	.11
250-4	.10½
280-3	.12
280-4	.11½

GULF COAST—

Pale Oils:		
200-3	.07	.07¼
300-3	.07¼	.07⅜
500-3½	.08¼	.08¾
750-3½	.08⅝	.09¼
1,200-3½	.09¼	.09¾
1,500-4	.09¾	.10
Red Oils:		
200-5-6	.07¼	.07½
300-5-6	.07¼	.07½
500-5-6	.08	.08½
750	.08¾	.09
1,200-5-6	.09¼	.09½

CALIFORNIA (moving to dom. market)—

Pale Oils:		
100-2½-3	.07¼	.08
200-2½-3	.07¼	.08
300-2½-3	.07¼	.08
400-3-4	.07¼	.08
450-3-4	.07¼	.08
550-3-4	.09	.11
600-3-4	.09	.11
Red Oils:		
200-4-5	.07¼	.08
300-5-6	.07¼	.08
350-5-6	.09¼	.11½
400-5-6	.09¼	.11½
450-5-6	.09¼	.11½
500-5-6	.09¼	.11½
600-5-6½	.09¼	.11¾
700-6½ plus	.09¼	.11½
750-6½ plus	.09¼	.11½
900-6½ plus	.09¼	.11½

PENNSYLVANIA—

150 vis. at 750° F. color, 400-405 flash:		
Zero pour test	.22½	.23
10 pour test	.21½	.22
15 pour test	.21	.21½
25 pour test	.20	.20½
180 vis. at 70° F., 3 color:		
25 pour test	.23	.23½
200 vis. at 70° F., 3 color:		
Zero pour test	.27	.27½
10 pour test	.26	.26½
15 pour test	.25½	.26
25 pour test	.24½	.25

Wax and Petrolatum

(Prices per pound)

OKLAHOMA (Group 3)—

124-126 (a.m.p.) w.c. scale		.03

PENNSYLVANIA (inland refineries)—

122-124 (a.m.p.) w.c. scale	.0295	.0300
124-126 (a.m.p.) w.c. scale	.0300	.0305

NEW YORK—

Wax in bags fully refined:		
122-125 (a.m.p.) wax		.0445
125-127 (a.m.p.) wax		.0455
128-130 (a.m.p.) wax		.0480
130-132 (a.m.p.) wax		.0505
133-135 (a.m.p.) wax		.0535
135-137 (a.m.p.) wax		.0560
124-126 (a.m.p.) w.s.	.0295	.0300
124-126 (a.m.p.) y.s.	.0265	.0280
Petrolatum in barrels, carload lots:		
Dark green		.01⅞
Amber	.02⅞	.03
Extra amber	.03	.03⅛
Lily white	.06⅝	.06¾
Snow white	.07¾	.07⅞
Cream	.05⅝	.05¾

Export Prices

GASOLINE

GULF COAST—

U. S. Motor		.06⅛
60-62 400		.06¼
61-63 390	.06⅛	.06¼
64-66 375		.06⅜

LOS ANGELES—

U. S. Motor grades:		
55-65 octane		.04¾
65-67 octane		.05
67-69 octane		.05⅛
Above 69 octane	.05¾	.06¼

KEROSENE

GULF COAST—

41-43 prime white		.04⅞
41-43 water white		.05⅛
44 water white		.05⅜

LOS ANGELES—

41-43 water white	.04½	.05

LUBRICANTS

(Pennsylvania Grade)

NEW YORK (f.a.s. in bbls.)—

Cylinder Stocks:		
600 Warren E	.26½	.27
600 S.R. unfiltered	.24	.24½
630 S.R. unfiltered	.25½	.26
600 flash, S.R.	.26½	.27
630 flash, S.R.	.31½	.32
Bright Stocks:		
8 color	.32	.32½
6½ plus color in dilution	.31½	.32

NEUTRAL OIL

200-3 color	.34	.34½
150-3 color	.29½	.30

PARAFFIN WAX

NEW YORK (prices per pound)—

123-126 a.m.p.		.04125
125-127 a.m.p.		.0425
128-130 a.m.p.		.0450
133-135 a.m.p.		.0525
135-137 a.m.p.		.0550
Crude scale:		
124-126 w.s.	.0295	.0300
124-126 y.s.	.0265	.0280

CRUDE OIL PRICES

Oklahoma, Kansas, North Central and East Central Texas

(January 28, 1937)

East Texas (May 22, 1937)*	$1.35
Van, Tex.†	1.10
Camp Hill, Tex.	1.27
Cass County, Tex.‡	1.25
Talco	.73
Altus and Tipton, Okla.§	1.20
Other fields (see gravity table).	

*All companies. †Humble Oil & Refining Co.; Pure Oil Co. ‡Texas Co. §Gulf Oil Co. Talco by Humble Oil & Refining Co.

West Texas

See gravity table.

Pecos County*	.91
Pecos shallow†	.81

*Shell Petroleum Corp., Gulf Pipe Line Co., and Humble Oil & Refining Co. †Shell Petroleum Corp.

Rocky Mountain States

(Effective January 28, 1937)

Iles, Colo., light*	$1.18
Iles, Colo., heavy*	1.12
Greybull, Wyo.*	1.30
Torchlight, Wyo.*	1.30
Grass Creek, Wyo., light.*†	1.30
Grass Creek, Wyo., heavy (Nov. 4, 1936)*†	.62
Hamilton Dome, Wyo. (Nov. 4, 1936)*	.57
Elk Basin, Wyo., light*†	1.30
Frannie, Wyo., heavy*	.62
Frannie, Wyo., light	.82
Hogback, N. Mex.*	1.33
Pondera, Mont. (Jan. 26, 1936)*	1.05
Salt Creek, Dutton Creek and Midway, Wyo., take Stanolind's Oklahoma prices on a gravity basis.	
Big Muddy, Wyo.†	1.23
Rock Creek, Wyo.†	1.20½
Lea County, N. M. (see West Texas gravity table).	
Artesia, N. Mex.	.90
Maljamar, N. Mex.	.90
Canon City and Florence, Colo.	1.10
Florence, Colo.	.98
Lance Creek, Wyo.	.97
Sunburst, Mont. (June 5, 1936)	1.20
Cat Creek, Mont.	1.40
Cut Bank, Mont.	1.40

*Stanolind Oil & Gas Co. †Ohio Oil Co. ‡Continental Oil Co. Cut Bank by Toronto Pipe Line Co. and others.

Gulf Coast

(January 28, 1937)

Choctaw and Darrow, La. See note below	
Clay Creek, Tex.	$1.00
Garden Island, La.	1.37
Cleveland, Tex.	1.27
Hardin, Tex.	1.15
Lafitte, La.	1.24
Livingston, Tex.	1.27
Welsh, La.	.98
Tepetate (La.) (Jan. 4, 1937)	1.12

Duval, Jim Hogg, Webb and Zapata counties, Texas, and Heyser and Placedo fields take Mirando gravity prices. Jennings, La., 5 cents lower than Gulf Coast prices on each degree. Segno, Texas, takes Gulf Refining Co.'s Gulf Coast prices. Choctaw and Darrow, Louisiana, posted for first time by Standard Oil Co. of Louisiana, start below 21 degrees at 90 cents, with 3-cent differential up to 25 gravity, then 2-cent differential up to 40 and above, $1.36.

Middle Western States

OHIO OIL CO.

(Effective January 28, 1937)

Lima	$1.25
Illinois	1.35
Princeton, Ind.	1.35
Midland, Mich. (July 23, 1937)*	1.27
West Branch, Mich. (July 22, 1937)	1.09
Buckeye (July 23, 1937)	1.24½
Arenac, Mich. (July 1, 1937)	1.21
Muskegon, Mich.	1.00
Eastern Kentucky:	
Big Sandy River	1.42
Kentucky River	1.50
Western Kentucky	1.40

*Posted by Pure Oil Co.

Midland, Mich., price posted by Simrall Corp. and Pure Oil Co. includes Greendale, Porter, Beaverton, Crystal and equal grades. West Branch and Arenac by Simrall Corp. Eastern Kentucky crude purchased by Ashland Refining Co., Ashland, Ky. Buckeye posted by Simrall Corp. and Pure Oil Co.

Southwest Texas

(January 28, 1937)

Pettus	1.37
Salt Flat, Darst Creek, Hilbig, Carroll Clark, Zoboroski	1.09
Luling	1.00
Lytton Springs	1.12

Saxet and Taft take same gravity table as Gulf Coast.

North Louisiana and Arkansas

Smackover, all grades	$ .90
Tullos and Urania	1.02
El Dorado East field	.90
Union County, Ark.	.90
Ouachita County, Ark.	.90

Eastern States

TIDE WATER PIPE LINE CO.

(Effective Sept. 1, 1937)

Bradford, Pa.	$2.60
Allegany, N. Y.	2.60

SOUTH PENN OIL CO.

(Effective Sept. 1, 1937)

Pennsylvania Grade Oil in National Transit Lines (Bradford field)	2.60
Pennsylvania Grade Oil in Southwest Pennsylvania Lines	2.30
Pennsylvania Grade Oil in Eureka Pipe Line lines	2.25
Pennsylvania Grade Oil in Buckeye Pipe Line lines	2.10
Corning Grade Oil in Buckeye Pipe Line Co.'s lines (Sept. 2, 1937)	1.27

PENNZOIL CO.

(Effective Sept. 1, 1937)

Pennsylvania Grade Oil in National Transit Lines:	
Group A	2.60
Includes Cochran, Franklin, Hamilton and Doolittle districts.	
Group B	2.59
Includes Titusville district.	
Group C	2.58
Includes Turkey and Tidioute districts.	
Group D	2.57
Includes Bear Creek and Porkey districts.	
Group E	2.55
Includes Eldeneau, Bull Creek, Rough Run, Carbon, Dipner, Bredin, McJunkin, Jameson, Kennerdell, Emlenton, Tiona, Lacey and Kinzua districts.	
Price depends on lengths of pipe line haul to plant at Oil City.	

PURE OIL CO.

(Effective Sept. 1, 1937)

Cabin Creek, W. Va.	2.25
Bradford Hollow, W. Va.	2.25
Kelly Creek, W. Va.	2.25

Canada

Ontario (Sept. 9, 1933):*	
Petrolia	$2.10
Oil Springs	2.17
Alberta (Sept. 1, 1937):†	
Turner Valley:	
Clear naphtha	2.36
Discolored naphtha, 65 gravity and higher	2.36
Discolored naphtha and crude oil, 40-40.9 gravity	1.36
Increasing 2 cents for each degree of gravity with top price for 64-64.9 gravity	1.84

These prices delivered field tankage.
*Imperial Oil, Ltd.
†Imperial Oil, Ltd., and Regal Oil & Refining Co.

Mexico

Panuco*	$1.24

*In U. S. currency, f.o.b. ship, based on April spot market transactions.

Crude Prices by Gravities

	1 Oklahoma-Kansas	2 Oklahoma-Kansas	3 North and Central Texas	4 East Central Texas (Mexia district)	5 North Louisiana-Arkansas	6 Gray County, Texas	7 Hutchinson-Carson counties, Texas	8 Rodessa, Louisiana-Texas and Panola County, Texas	9 Conroe, Tomball, Raccoon Bend, Deep, Sateuma	10 Gulf Coast	11 Gulf Coast	12 Lea County, N. Mex. West Texas except Pecos County,	13 Mirando district, Texas	14 Marion County, Texas	15 Refugio, Greta, Saxet, Taft, Texas	16 Anahuac, Flour Bluff, Dickson, Turtle Bay	17 White Castle, Louisiana	18 Iowa, Louisiana	19 Cayuga, Texas
Bel. 18	....	....	....	....	....	....	....	....	....	$.90	....	....	....	....	....	....	....	$.90	....
18-18.9	....	....	....	....	....	....	....	....	....	.92	....	....	....	....	....	....	....	.92	....
19-19.9	....	....	....	....	....	....	....	....	....	.94	....	....	....	....	....	....	$.94	.94	....
20-20.9	....	....	....	....	....	....	....	....	....	.96	$.95	....	$.96	....	$1.01	....	.96	.96	....
21-21.9	....	....	....	....	....	....	....	....	....	.98	.98	....	.98	....	1.03	....	.98	.98	....
22-22.9	....	....	....	....	....	....	....	....	....	1.01	1.01	....	1.00	....	1.05	....	1.01	1.01	....
23-23.9	....	....	....	....	....	....	....	....	....	1.04	1.04	....	1.02	....	1.07	....	1.04	1.04	....
24-24.9	....	....	....	....	....	....	....	....	....	1.07	1.07	....	1.04	....	1.09	....	1.07	1.07	....
Bel. 25	....	$.98	....	....	$.90	....	....	$.93	....	....	....	....	....	$.90	....	....	....	....	$.88
25-25.9	....	1.00	....	....	.92	....	....	.95	....	1.10	1.10	$.78	1.06	.92	1.11	....	1.10	1.10	.90
26-26.9	....	1.02	....	....	.94	....	....	.97	....	1.13	1.13	.80	1.08	.94	1.13	....	1.13	1.13	.92
27-27.9	....	1.04	....	....	.96	....	....	.99	....	1.15	1.15	.82	1.10	.96	1.15	....	1.15	1.15	.94
28-28.9	....	1.06	....	....	.98	....	....	1.01	....	1.17	1.17	.84	1.12	.98	1.17	....	1.17	1.17	.96
Bel. 29	$1.06	....	$.96	$1.03	....	....	....	....	$1.20	....	....	....	....	....	....	....	....	....	....
29-29.9	1.08	1.08	.98	1.05	1.00	....	....	1.03	1.22	1.19	1.19	.86	1.14	1.00	1.19	....	1.19	1.19	.98
30-30.9	1.10	1.10	1.00	1.07	1.02	....	....	1.05	1.24	1.21	1.21	.88	1.16	1.02	1.21	$1.16	1.21	1.21	1.00
31-31.9	1.12	1.12	1.02	1.09	1.04	....	....	1.07	1.26	1.23	1.23	.90	1.18	1.04	1.23	1.18	1.23	1.23	1.02
32-32.9	1.14	1.14	1.04	1.11	1.06	....	....	1.09	1.28	1.25	1.25	.92	1.20	1.06	1.25	1.20	1.25	1.25	1.04
33-33.9	1.16	1.16	1.06	1.13	1.08	....	....	1.11	1.30	1.27	1.27	.94	1.22	1.08	1.27	1.22	1.27	1.27	1.06
34-34.9	1.18	1.18	1.08	1.15	1.10	....	....	1.13	1.32	1.29	1.29	.96	1.24	1.10	1.29	1.24	1.29	1.29	1.08
Bel. 35	....	....	....	....	....	$.96	$.91	....	....	....	....	....	....	....	....	....	....	....	....
35-35.9	1.20	1.20	1.10	1.17	1.12	.98	.93	1.15	1.34	....	1.31	.98	1.26	1.12	1.31	1.26	1.29	1.29	....
36-36.9	1.22	1.22	1.12	1.19	1.14	1.00	.95	1.17	1.36	....	1.33	1.00	1.28	1.14	1.33	1.28	1.29	1.29	....
37-37.9	1.24	1.24	1.14	1.21	1.16	1.02	.97	1.19	1.38	....	1.35	1.02	1.30	1.16	1.35	1.30	1.29	1.29	....
38-38.9	1.26	1.26	1.16	1.23	1.18	1.04	.99	1.21	1.40	....	1.37	1.04	1.32	1.18	1.37	1.32	1.29	1.29	....
39-39.9	1.28	1.28	1.18	1.25	1.20	1.06	1.01	1.23	1.42	....	1.39	1.06	1.34	1.20	1.39	1.34	1.29	1.29	....
40,over	1.30	1.30	1.20	1.27	1.22	1.08	1.03	1.25	1.44	....	1.41	1.08	1.36	1.22	1.41	1.36	1.29	1.29	....

Column 1—Companies posting are Barnsdall, Bell, Champlin, Continental, Cushing, Derby, Dickey, Eason, El Dorado, Empire, Falcon, Globe, Gulf, Johnson, Kanotex, National, Phillips, White Eagle, Stanolind, Sunray, Texas, Sun, Vickers and Wilcox.
Column 2—Anderson & Prichard, Carter, Cosco, Deep Rock, Magnolia, Mid-Continent, Pure, Rock Island, Shell, Sinclair, Skelly and Tide Water.
Column 3—All purchasers.
Column 4—Humble Oil & Refining Co. and Sinclair Oil Purchasing Co.
Columns 5, 6, 7 and 8—All purchasers.
Column 9—Humble Oil & Refining Co. and Sun Oil Co. Tide Water Oil Co.'s schedule starts at 35 degrees, $1.34 with 2-cent spread up to 40 and over at $1.44. (Raccoon Bend prices are for deep sand oil.)
Column 10—The Texas Co. (Gulf Refining Co. pays same prices up to and including 34 gravity, but continues its 2-cent spread up to 40 and over at $1.41.)
Column 11—Humble Oil & Refining Co., Sinclair Prairie Oil Marketing Co., Sun Oil Co.
Column 12—All purchasers.
Column 13—All purchasers (effective July 6, 1937).
Column 14—Magnolia Petroleum Co.
Column 15—Humble Oil & Refining Co. (effective July 6, 1937).
Column 16—Humble Oil & Refining Co. prices start at 30-30.9 gravity at $1.16 adding 2 cents for each degree upward to and including 40 and over at $1.36.
Columns 17 and 18—Shell Petroleum Corp.
Column 19—Tide Water Oil Co.

Rocky Mountain Runs

Average daily production in the week ending September 11 was as follows:

	Bbls.
WYOMING	
Salt Creek	15,960
Big Muddy	1,380
Badger Basin	140
Black Mountain	180
Dallas Derby	550
Dutton Creek	60
Elk Basin	380
Frannie	640
Garland	2,070
Grass Creek	530
Hamilton dome	1,550
Hidden dome	360
Hudson	320
LaBarge	930
Lance Creek	10,310
Lost Soldier	1,520
Medicine Bow	4,380
Mule Creek	320
Midway	20
Oregon Basin	6,060
Osage	740
Pilot Butte	20
Quealy dome	810
Rock River	1,570
South Casper	470
Poison Spider	320
Teapot	10
Wertz	130
Waugh dome	260
Total Wyoming	51,990
MONTANA	
Border	90
Cat Creek	620
Cut Bank	10,600
Dry Creek	20
Kevin-Sunburst	5,070
Lake Basin	20
Pondera	1,610
Total Montana	18,030
COLORADO	
Florence	140
Fort Collins and Wellington	200
Iles dome	2,922
Moffat	410
Orchard	10
Rangely	80
Tow Creek	170
Price	610
Total Colorado	4,542
NEW MEXICO	
Cooper	5,970
Eaves	1,090
Eunice	31,390
Hardy	1,320
Hobbs	19,800
Jal	1,210
Langlie	2,300
Lynch	780
Lynn	310
Mattix	2,000
Monument	33,100
North Lynch	50
Penrose	3,370
Rhoades	90
Skelly	1,540
South Eunice	2,090
Vacuum	10
Artesia-Maljamar	6,810
Getty	200
Hogback	100
Rattlesnake	690
Table Mesa	100
Total New Mexico	114,320
Total Rocky Mountain region	188,882

John N. Troxell, division geologist for the Texas Company in Tulsa, is back from Pennsylvania, his home state, where he passed his vacation. He was accompanied by his family.

Ben F. Horton, manager of the Kansas land department for the Sinclair Prairie Oil Company, is back home in Wichita following a vacation of several weeks.

MARKET RECORD, ACTIVE OIL STOCKS

Compiled by Carl H. Pforzheimer & Co., 25 Broad Street, New York City, Member New York Stock Exchange and New York Curb Exchange

New York Stock Exchange

1937 High	1937 Low	Week ending Sept. 11 Sales	Week ending Sept. 11 High	Week ending Sept. 11 Low	Week ending Sept. 11 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
114⅞	79	3,900	85	78	78	Amerada Corp.	788,675	N.P.	50cQ	7-31-37	$2.00	125½	75	80	48⅛
37	23½	16,700	26½	23½	24½	Atlantic Refining	2,664,000	$25	25cQ	9-15-37	1.25	35⅛	26⅝	28	20½
43⅜	21¼	8,000	25⅝	21¼	22½	Barber Co.	387,149	$10	25c.	6-1-37	.50	38½	21	22½	11¾
35¼	16⅞	37,700	20¾	16⅞	19½	Barnsdall Oil Co.	2,247,974	$5	25cQ	8-2-37	.80	28¼	14⅛	14¾	5⅞
20⅞	10	67,600	11⅞	10⅛	10⅜	Columbia Gas & Elec.	11,610,036	N.P.	20c	5-15-37	.40	23⅜	14	15⅜	3⅜
17⅞	12½	58,800	14	12⅝	12⅝	Consolidated Oil Corp.	13,919,417	N.P.	20cQ	8-14-37	.80	17¼	11½	12¼	6½
49	36¾	19,200	41⅜	36¾	38	Continental Oil of Delaware	4,682,615	$5	50cQ†	9-30-37	1.50	44⅞	28⅛	35	15⅛
17⅝	10	40,100	12⅜	10	10⅜	Houston Oil (new)	1,098,618	$25	....	10-17-30	....	13⅞	6⅜	7	1⅛
35⅜	25⅛	7,400	28⅜	25⅜	26¼	Mid-Continent Petroleum	1,855,912	$10	50cSA	6-15-37	1.15	30⅞	17¼	20½	9½
34	21¾	3,900	25	21¾	22	Mission Corporation	1,399,345	N.P.	1.00	6-15-37	.45	29⅞	16¾	17¾	10⅜
41⅜	27¼	12,400	31	25¾	26	National Supply of Delaware	382,591	$25	....	5-15-31	....	75½	19⅞	20⅞	9
22⅞	14⅜	40,900	17⅜	14⅜	15⅛	Ohio Oil Co.	6,563,377	N.P.	50cSA	6-15-37	.60	18	12⅛	14¼	9¼
29¾	18⅛	2,500	22	18	18	Pacific Western Oil	1,000,000	N.P.	65c	12-18-36	.65	23½	11¾	14	6¾
4½	1⅜	2,100	2	1⅜	1⅝	Panhandle P. & R.	198,770	N.P.	....	....	....	4¼	1⅜	1⅞	½
64	49½	23,200	54	50½	50½	Phillips Petroleum	4,449,052	N.P.	75cQ†	9-1-37	2.50	52⅜	38⅛	40	13⅜
29⅞	20	10,200	22½	20	21¼	Plymouth Oil Co.	1,050,000	$5	35cQ	9-30-37	.90	27¾	11⅞	13	6½
24⅜	15½	79,400	17⅜	15½	16	Pure Oil Co.	3,281,120	N.P.	....	9-1-30	....	24⅞	16	17	5⅞
54⅛	30	6,500	35	30	30	Seaboard Oil of Delaware	1,224,283	N.P.	25cQ	9-15-37	1.00	44	30½	36⅞	20¾
34¾	22¼	13,700	24¼	22⅛	23	Shell Union Oil	13,070,625	N.P.	50c	7-15-37	.25	28¼	14¾	16½	5½
105⅜	102	500	104¼	104	104¼	Shell Union Oil 5½% pfd.	343,500	$100	$1.37½Q	10-1-37	28.87½	127½	102	111	63⅛
4¼	3⅛	800	3¼	3⅛	3⅛	Simms Petroleum	461,698	$10	50c liq.	8-3-37	2.25 liq.	6¾	3½	18¾	4¾
60⅝	42	2,600	44¾	42⅛	42¾	Skelly Oil	1,006,348	$15	50c	9-30-37	....	47⅜	19½	20½	6½
23¼	16¼	128,600	19⅝	17⅜	18	Socony-Vacuum	31,151,071	$15	25cSA	9-15-37	.70	17½	12½	15⅜	10⅝
50	38¼	23,300	41¼	38¼	38½	Standard Oil of California	13,014,754	N.P.	45cQ†	9-15-37	1.20	47⅝	35	41⅛	27¾
50	37½	23,500	43½	37	37½	Standard Oil (Indiana)	15,196,241	$25	50cQ†	9-15-37	2.40	48½	32¾	33⅝	23
36½	30⅝	400	35¾	34½	35¾	Standard Oil of Kansas	134,841	$10	$1	12-26-36	1.00	31	25	32	20
76	58¾	42,500	62¼	58⅝	58¾	Standard Oil of New Jersey	25,856,081	$25	$1.25SA†	6-15-37	2.00	70⅝	51⅛	52⅜	35¾
77½	65	500	67½	65½	65½	Sun Oil	2,156,825	N.P.	25cQ	9-15-37	$1 & 6% Stk.	91	70	77	60½
65⅛	50⅜	49,800	55½	50¾	51½	Texas Corp.	10,896,858	$25	50cQ	10-1-37	1.50	55¼	28⅞	30¼	16½
9⅝	4⅝	24,500	6⅛	4⅝	5	Texas Gulf Producing Co.	888,131	N.P.	5c	12-15-36	.05	8⅞	4⅜	4¾	2½
16⅝	10	16,400	11½	10	10⅛	Texas Pacific Coal & Oil	888,237	$10	10c	9-1-37	.25	15¼	7½	9¼	3¼
21⅝	15⅝	18,600	18⅝	17	17¾	Tide Water Associated	6,288,512	N.P.	35cQ†	9-1-37	.70	21¾	14¾	15⅞	7⅝
28¼	21½	14,800	23⅜	21½	21⅝	Union Oil of California	4,386,070	$25	30cQ	8-10-37	1.00	28½	20¾	24	14⅜
31½	24¾	3,000	25⅞	24¾	24⅞	Union Tank Car Co.	1,200,000	N.P.	40cQ	9-1-37	1.20	31⅝	22⅝	26½	20⅞
6¼	3	9,300	3⅞	2⅞	2⅞	Wilcox Oil & Gas	424,839	$5	....	5-10-28	....	5¼	2¾	3⅛	1

*Ex-dividend. †Includes extras.

New York Curb Exchange

1937 High	1937 Low	Week ending Sept. 11 Sales	Week ending Sept. 11 High	Week ending Sept. 11 Low	Week ending Sept. 11 Close	Stocks—	Total shares outstanding	Par value	Latest dividend	Payable or last paid	Dividends paid in 1936	1936 High	1936 Low	1935 High	1935 Low
21⅜	15¼	2,500	16⅜	15¼	15½	Bridgeport Machine Co.	260,000	N.P.	25c	6-30-37	$1.00	21	13¼	14⅛	3¾
51½	45	150	46¼	45	45	Buckeye Pipe Line Co.	200,000	$50	$1Q	9-15-37	3.25	50	39¾	42½	30½
2¾	1¼	7,900	1½	1¼	1⅜	Caribb Syndicate	799,020	25c	....	.....	....	4⅞	1⅞	4¼	1⅝
123	106	150	107½	106	106	Chesebrough Mfg. Co.	120,000	$25	$1.50Q†	9-30-37	7.00	124¾	105	157	115
5⅜	2	91,100	2⅞	2	2½	Cities Service	37,804,394	N.P.	....	6-1-32	....	7⅝	3	3¼	¾
5½	3¼	9,100	4	3⅛	3¼	Cosden Petroleum	399,687	$1	....	.....	....	4½	1½	1½	¼
38¾	28½	16,300	33⅞	29	30	Creole Petroleum	6,974,356	$5	50cSA†	6-10-37	.50	39	19⅞	23¾	10
18⅝	10	2,500	11¼	10	10½	Darby Petroleum	351,390	$5	25cSA	7-15-37	.50	18⅛	9	8⅞	4
8⅜	5¼	4,100	6⅞	4⅝	4⅝	Derby Oil & Refining	263,162	N.P.	....	.....	....	6¾	1⅞	2	⅝
47½	30	150	33½	30⅝	30⅝	Eureka Pipe Line	50,000	$50	$1Q	8-2-37	4.00	47½	38½	38	33¼
63½	50	17,000	54¾	49½	50	Gulf Oil Corp.	9,076,202	$25	25cQ	7-1-37	1.50, 100% Stk.	59	36	74¾	50¼
87	71½	6,800	80¾	71¼	71¼	Humble Oil & Refining	8,923,935	N.P.	62½cQ	10-1-37	1.50	80	57	64	44
24¼	19½	3,100	20¼	19½	19½	Imperial Oil of Canada	26,919,871	N.P.	62½cSA†‡	6-1-37	1.25	24½	19¾	22½	15⅝
15	7⅜	400	9	8	8	Indiana Pipe Line	300,000	$10	30cSA	5-15-37	.80	9¾	5½	6⅛	3⅝
39½	31¾	5,900	34⅛	31¾	32⅝	International Petroleum	14,247,088	N.P.	$1.25†‡	6-1-37	2.50	39⅝	32⅝	39¾	28
15¼	9⅞	11,000	12⅛	9	9⅞	Louisiana Land & Exp.	3,000,000	N.P.	10cQ	9-15-37	.50	15⅜	9⅞	11⅜	4⅜
34	16⅛	7,200	26	22⅝	24⅝	Lion Oil Refining	270,000	N.P.	50cQ†	7-20-37	.75	17¾	7⅝	8⅛	3½
14¼	9	12,200	9⅞	9	9¼	Lone Star Gas	5,382,723	N.P.	20c	8-21-37	.60	14¼	9⅞	10⅞	4½
14⅝	8¼	3,000	9	8¼	8¼	Midwest Oil Co.	998,444	$10	50c	6-15-37	....	..	..	..	..
7⅞	5¼	6,000	6	5¼	5⅝	Mountain Producers	1,682,182	$10	30cSA	6-15-37	.60	8⅜	5	5¾	4⅛
19½	14⅛	2,600	14⅞	14⅛	14¼	National Fuel Gas	3,810,183	N.P.	25cQ	7-15-37	1.00	23	17⅜	20	11¾
12½	9½	3,100	10	8⅝	8⅝	National Transit	509,000	$12.50	45cSA	6-15-37	.75	15¾	9¼	10⅝	6¾
6⅛	4¼	No sales	..	..	..	New Bradford Oil	1,445,202	$5	15cSA	4-15-37	.10	4⅝	2⅞	3¼	2
5	1¾	2,500	2	1¾	1¾	New Mexico and Arizona	1,000,000	$1	1c	12-1-36	.01	6⅝	1⅝	2½	1
5⅜	4¼	No sales	..	..	..	New York Transit	100,000	$5	15cSA	4-15-37	.35	6¼	4¼	4⅞	3
12¾	7½	200	7¾	7¾	7¾	Northern Pipe Line	120,000	$10	40c	6-1-37	.40	9¾	4⅞	8	5¼
9⅝	5½	55,300	6⅞	5½	6	Pantepec Oil	1,608,700	N.P.	....	.....	....	10⅛	3¼	4⅜	1¼
13¾	4½	3,600	5½	4¼	4¾	Root Petroleum Co.	336,045	$1	25c	11-2-36	.50	19¼	4½	5	1½
6½	4	1,200	4⅜	3⅞	4⅜	Ryan Consolidated	296,931	N.P.	..	..	....	4¾	1⅞	2½	⅝
56	42	800	48½	46¾	48	South Penn Oil	1,000,000	$25	$1.15Q†	9-30-37	2.60	44	32½	34½	21⅝
7¼	4⅞	100	5	5	5	Southern Pipe Line	100,000	$10	25cSA	9-1-37	.25	7⅞	3¼	5	3⅞
42	26	No sales	..	..	..	South West Penna. Pipe Lines	35,000	$50	50cQ	7-1-37	13.00	60	44	56	44¼
21⅛	19	3,900	20	18¾	18¾	Standard Oil of Kentucky	2,604,790	$10	40cQ†	9-15-37	1.35	23⅜	17⅛	24	18
13¾	8⅞	500	9	8⅞	9	Standard Oil of Nebraska	188,403	$25	25c	3-29-37	.25	14⅝	11	12	7¾
45	28	2,300	34	28	31	Standard Oil of Ohio	753,740	$25	25cQ	9-15-37	2.00	40	21¾	23⅝	11½
4⅞	3½	14,500	4	3½	3⅝	Sunray Oil	1,910,119	$1	10c	8-20-37	.10	5	2⅝	2⅞	⅞
7⅝	4⅞	1,500	5⅝	4⅞	4⅞	Texon Oil & Land	336,028	$2	15cQ	9-3-37	.60	9¾	5⅜	6⅞	5

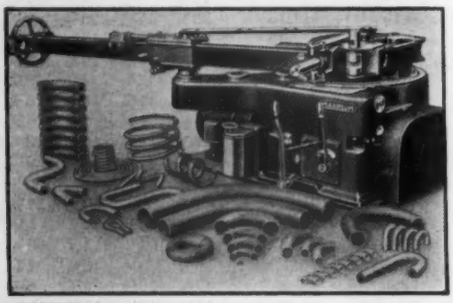
*Ex-dividend. †Includes extras. ‡Payable in Canadian funds.

Note—In comparing highs and lows for the several years in the two tables, it will be necessary to take into consideration cases where there have been stock split-ups.

NEW OR IMPROVED EQUIPMENT

Hilgers Engineering Introduces New Tube-Bending Machine

The Maximum B M is a recent addition to the line of tube-bending machines manufactured as a sole specialty for years by the Hilgers Engineering Works, of Rodenkirchen, near Cologne, in Germany. One of the smaller types is shown in the illustration.



The new machine is adapted to practically any kind of tube-bending, including thin- and thick-walled tubes of iron, steel, copper, aluminum, etc., of any size up to about 12-inch outside diameter.

One of the outstanding features of the machine is that it does not injure the material handled, although the work is done without heating or filling. Another important fact is that interchanging of bending tools can be effected quickly. The machine permits the bending of complete tube lengths and, according to the manufacturer, will do the most difficult bending work, such as coils, spirals, serpentines, boiler tubing, etc. Oil companies which have installed these machines are able to do their own bending work, avoiding delays.

Bulletins, Booklets and Other Literature for the Trade

Leaks in pipe lines cause industry big losses every day in the year. The loss of the substance conveyed in the pipe line may be considerable, or its escape may be a hazard. But a still larger loss is the expense incident to pipe repair. Engineers, superintendents and maintenance men who have been confronted with these conditions will welcome the new "Pipe Repair Handbook," published by M. B. Skinner Co., South Bend, Ind. It discusses all the various kinds of leaks in pipe lines, holes, splits, pitted or corroded sections; and joints of various kinds such as threaded joints, bell and spigot joints, welded joints, collars, etc. It is sent without cost to men responsible for pipe maintenance.

The initial units in a line of modern temperature gauges, which differ materially from any previous type of industrial indicating thermometer, have just been introduced by the Weston Electrical Instrument Corp., Newark, N. J. These new instruments are of the modern dial-and-pointer type, said to be the first industrial application of a new "coils-within-coils" design for the bimetal temperature-sensitive element. Accuracy is guaranteed to 1 per cent over the whole scale.

The advantages of welded joints in installing piping systems are discussed in "Welded Piping," a 12-page illustrated booklet, published by Linde Air Products Co., New York. Subjects of particular interest to builders and engineers are treated in sections on: Pipe and services to be welded; lighter than standard weight pipe; fast, economical welding methods; layout, drawings and specifications; welded joints and fittings; plan of construction; shop and field fabrication, and piping erection.

The Geophysical Instrument Co., 1315 Half Street, S.E., Washington, D. C., has just issued Circular A on the Gish-Rooney earth resistivity apparatus used for oil, ground water and mineral prospecting. This circular will be gladly sent to anyone upon request.

A compact, self-contained utility compressor unit for mounting on a motor truck is illustrated and described in bulletin No. 2320A issued by the Ingersoll-Rand Co., 11 Broadway, New York.

A detailed description of the Nixon surface control gas-lift system is given in a 12-page booklet, "There's Something New Under the Sun," obtainable from the Wilson Supply Co., Houston, Tex.

The Pacific Pump Works, 5716 Bicket Street, Huntington Park, Calif., has issued a new bulletin covering its streamlined pumps and fittings. The company recently announced the internal streamlining of its oil-well plunger pump.

A 98-page catalog covering storage-tank conservation equipment is announced by the Shand & Jurs Co., Carlton and Eighth Streets, Berkeley, Calif.

New Casing Centralizing Tool Permits Accurate Cementing

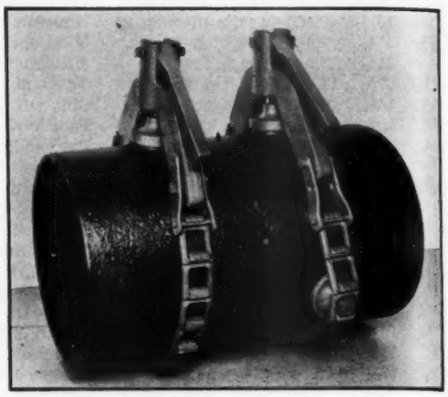
The Cosco casing centralizer, recently announced to the trade by W-K-M Co. of Houston, Tex., is a new patented tool designed to permit an accurate cementing job. It holds the casing in the exact center of the well bore, thereby allowing an even distribution of cement entirely around the circumference.

The tool is equipped with preformed spiral spring steel blades which have an undertwist throughout their curve, this forming a cutting or scraping edge on their upper sides, and a sliding or smoothing edge on the under sides. Upon being raised, the springs scrape the mud lining from the hole wall, permitting cement to bond directly with the formation. On the downward movement, the springs trowel and smooth the hole wall, enabling the operator to preserve the well bore lining at any point.

As the fluid passes the cleaner, the combined action of the spirals and the undertwist of the springs cause a whirling effect, which prevents channeling of cement and helps to clean the wall of the hole. The "Cosco" tool is pulled in and pulled out by means of lugs and slotted collars, the flexibility of the blades allowing it to pass any possible obstructions or through a small area hole.

New-Style Clamp Seals Large or Small Leaks in Lines

F. H. Maloney & Co., Houston, Tex., manufacturers of K & M oil country specialties, has placed



on the market a new-style leak clamp designed to seal large or small leaks in oil, water or gas lines. According to the manufacturer, the clamp is so simple in its construction and application that it can be installed on any size pipe from 4-inch to 24-inch diameter in one minute, and without the use of any tools, bolts or nuts. The clamp is made in only two sizes: a small-yoke size for pipe up to 10-inch diameter, and a large-yoke size for pipe sizes from 10 inches to 24 inches.

To install the K & M leak clamp, merely wrap the chain around the pipe, engage one end of the chain in the notch in the yoke, connect the clevice links to the yoke by means of a pin, adjust the rubber cone and seat with the fingers for any pressure required, and then throw the cam into locked position. The clamp is sold exclusively through Crutcher-Rolfs-Cummings Co., Houston, Tex.

Appointed Sales Manager

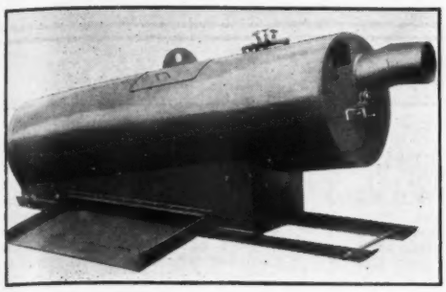
Asbestos Manufacturing Co., of Huntington, Ind., announces the appointment of Wilkes Campbell as sales manager, oil field materials division. In his new capacity he will direct the sale of Amco products in the oil fields of Texas, Oklahoma and Louisiana. Mr. Campbell has had many years of industrial experience and for the past five years has been Amco service manager.

Sucker-rods Featured in Movie

Oil Well Supply Co. announces completion of its motion picture, "Sucker-rods from Mine to Well," a 16-mm. talkie—showing time, 26 minutes. This picture shows not only the processing of sucker-rods from the ore mines to the oil fields, but also the handling of the rods in the field. Many close-ups are used in illustrating recommended practices for the care and handling of rods in the field. The chief causes of rod failure are shown by animated diagrams. The motion picture is available for showings at safety meetings, engineers' clubs, etc. Requests for use of the film can be made through any Oilwell representative.

Shale Separator Operated by Gravity Flow of Fluid

The Hudson-Boucher automatic shale separator is manufactured by Lucey Products Corp. and distributed through Lucey stores as well as by other leading supply companies.



Operated by the gravity flow of the drilling fluid against turbine blades attached inside the front end of the screen cylinder, the machine requires no other motive power. Complete separation is effected by the rotation of the screen unit as fluid passes through. Clean mud passes through the screen, down into the return trough, while cuttings are discharged out the open end of the screen cylinder.

The screen is 6 feet long and may be adjusted to proper tension by manipulation of the adjusting bars which run the length of the screen. On top of the housing a manifold is provided for the introduction of clear water to thoroughly clean the screen and cuttings. This feature provides for the salvage of much useful mud.

Max Hofmann Joins Waukesha

Max Hofmann has been appointed export sales manager of the Waukesha Motor Co., Waukesha, Wis., succeeding M. E. Nicklin. Mr. Hofmann joined the company in 1926, coming from the Argentine branch of Korting Brothers, German diesel engine building firm. His work there as a diesel installation engineer. His journeys in Europe, Africa and both Americas, and his ability to speak four languages help to quality him for his new position. During the past few years, with export business becoming more important, Mr. Hofmann has devoted much of his time to Waukesha's activity in this field. His engineering training has been applied to foreign sales and installation problems.

Here and There With Men Who Manufacture Equipment

A. A. Alexander and R. M. Marr of Seminole, Okla., have opened the Alexander and Marr oil field specialty tool and supply store at Seminole.

Myrl Halton, formerly chemical engineer for Peppers Gasoline Co., is now sales and service engineer for Dearborn Chemical Co.'s Oklahoma City branch office. Irl Yetman is in charge of the Oklahoma City office.

T. S. Jones, formerly of the Tulsa branch of Crane Co., Chicago, has been transferred to the company's oil sales department as a field representative, covering Kansas, Oklahoma and the Panhandle of Texas.

The Larkin Packer Co., St. Louis, Mo., manufacturer of oil field equipment, has made these additions to its sales organization: T. R. Wimbish, Corpus Christi, Tex.; T. E. Alexander, San Antonio, Tex., and Jack Brown, New Mexico and extreme West Texas areas. W. G. Baumann, formerly of the St. Louis office, is to assist H. S. Lindenmuth in Kansas. His headquarters will be in Great Bend, and Mr. Lindenmuth's in Wichita.

Effective September 1, William C. Moser, formerly in charge of National Tube Co.'s St. Louis office, was appointed manager of sales of the Dallas, Tex., sales office. Mr. Moser succeeds F. O. Young, who has been appointed manager of sales of the St. Louis office.

Babcock & Wilcox Tube Co., Beaver Falls, Pa., announce the appointment of the Uhrich Supply Co., 914 Central Street, Kansas City, Mo., as distributors of B&W seamless boiler tubes in the Kansas City trade territory—western Missouri and Kansas.

The Geophysical Instrument Co. has moved to larger quarters at 1315 Half Street, S.E., Washington, D. C. Facilities have been provided for mounting geophysical and servicing apparatus in trucks.

Airco Alloy-Steel Welding-Rod Offers Important Features

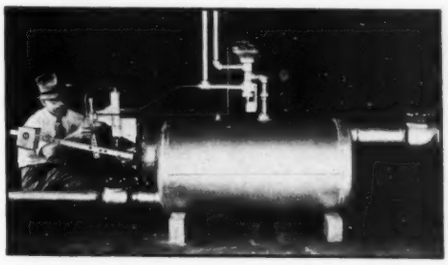
The Air Reduction Sales Co., Lincoln Building, New York, has developed a new gas welding-rod, the Airco No. 1 high-ductility alloy steel. It is designed to meet the demand for increased ductility and general improvement in quality of both single- and multilayer steel welds.

An outstanding feature is the rod's ability to withstand considerable heating without burning. In this important respect it is in a class by itself.

Characteristics of the new rod include the following: (1) Free-bend ductilities of single-layer welds range from 20 to 30 per cent, depending upon composition of the steel; (2) free-bend ductilities of multilayer welds, up to 40 per cent on low- and medium-carbon steels; (3) ultimate tensile strengths in excess of 60,000 pounds per square inch; (4) specific gravity of welds, 7.80 to 7.86; (5) Charpy impact values on keyhole notched specimens at 70° F., from 15 to 30 foot pounds; (6) Rockwell hardness of weld metal from B60 to B85, depending on carbon content of base metal and type of weld.

Automatic Blow Case Boosts Oil from Separator to Tank

The automatic blow case, announced by Black, Sivalls & Bryson, Inc., Oklahoma City, is a dependable apparatus for boosting oil to stock tanks from separators operating at low pressures. The sequence of operation is as follows: Liquid flows into case, float rises and trips three-way valve, intake valve closes, outlet valve opens, outside pressure valve opens, pressure drives liquid to tank or other receptacle.



The device is ideal for use as an automatic drip in wet gas lines operating under vacuum. It is strictly automatic, requires no attention, and is operable on a small volume of gas from outside source. Also the separator cannot flood. Gas required is 24.4 cubic feet per dump or 24,400 cubic feet per 24 hours, free gas, when operating at 25 pounds pressure and at full oil capacity.

Bronzan Promoted by Baash-Ross

The promotion of B. (Lou) Bronzan to the post of assistant sales manager of Baash-Ross Tool Co. is announced by H. C. Ross, vice president and sales manager of the company. Bronzan has been a member of the sales department for six years, and until his recent promotion he was head of the order department. His melodious telephone voice is well known to practically every customer of the company. His headquarters will continue to be at the general offices located at 5512 Boyle Avenue, Los Angeles.

SCHLUMBERGER BRANCH OFFICE MOVES TO NEW HOME

The Bakersfield branch of the Schlumberger Well Surveying Corp. has moved into its new home located on the northeast corner of Thirty-fourth and L Streets, Bakersfield, Calif. The new building was especially designed for the use of the company, and provides spacious offices, drafting rooms and equipment rooms. A modern air conditioning plant maintains the temperature and humidity at a comfortable level regardless how hot the weather may be. J. H. Gallois remains in charge of the Bakersfield division and invites inspection of the new headquarters.

Personnel of the Bakersfield branch shown in the accompanying picture are (left to right): R. Ford, M. Lebourg, J. H. Gallois (manager), Dick Richards, Dick Morris and J. Jouanet.

CLASSIFIED ADVERTISING

Leases and Drilling Blocks

PERMIAN BASIN
1,000 ACRE DRILLING BLOCK
Located on subsurface high between Howard-Glasscock and Mertzon, shallow pools of West Texas. Howard-Glasscock has produced 76,000,000 bbls. in last six years. Block is center of recent activity, both majors and independents taking leases, four wells will start next 30 to 60 days. Production possibilities evidenced by noticeable odor of gas escaping through fissures. Humble paid cash bonus for renewal of lease two miles northwest. Will give six-eighths of oil and gas for 2,600 ft. well.
ADDRESS
Box 1082, Austin, Texas.

NEW Texas Oil and Gas Leases. Large or small tracts for brokers and salesmen. State requirements. H. H. WHITE, P.O. Box 674, San Antonio, Texas.

WANT BROKER to handle commercial leases near deep test. Good geological location South Texas. Owner, Box 149, Beiton, Texas.

OWN drilling block south Young Co. Texas near big production. Will sell interest to develop or give acreage for development. Excellent possibilities for big production. Adress OWNER, 617 Petroleum Bldg., Fort Worth, Tex.

OIL LEASE—109 acres adjoining discovery well in Anderson-Kerr pool. 3 mi. S. E. Gainesville, Texas. Address Box H-950, The Oil and Gas Journal, Tulsa, Okla.

SECURITY ABSTRACT COMPANY
El Dorado, Arkansas
Fee, Lease & Mineral Ownership
on short notice. Ownership maps.

HAVE proven Texas lease. Need finances to drill. Liberal deal to right party. Address Box H-953, The Oil and Gas Journal, Tulsa, Okla.

FOR LEASE (No Brokers) N. W., S. E. 21-14n-3w. $35 per acre. MARY F. WILLIAMS, Walkersville, Md.

680 ACRES in fee Central Illinois. Leased. First test well now drilling on land. Probable shallow territory if any oil. Price $30.00 per acre. Also other lands. L. E. Talbott, Manito, Illinois. Licensed broker.

FOR SALE—Several pumping wells in shallow field eastern Kansas. Ideal for watering. A. B. FREDERICK, Lawrence, Kansas.

FOR SALE Oil producing leases with many locations yet to drill, leases for sale near production and wildcat leases for drilling contracts.
W. P. HARLEY
Bowling Green, Ky.

FOR SALE or exchange—Producing and distributing natural gas properties in western Missouri and eastern Kansas. Fine condition. Great development possibilities. Exchange for producing oil wells acceptable. LOUIS C. CYR, 45 Melrose St., Lawrence, Massachusetts.

PRODUCTION 30 barrels, Osage County, high gravity, four wells, 160 acres, pumping central power, all good equipment, price $20,000. Write, Box 1195, Abilene, Texas.

WANTED: To buy some good oil production in good proven area. Address Box H-941, The Oil and Gas Journal, Tulsa, Ok.

LEASES-ROYALTIES near Paluxy-Trinity sand test East Texas offer chance for quick money. E. CROFT, PROCTOR, TEX

OWN shallow producing lease Archer Co. Texas offset locations. Will sell interest and develop. Excellent investment. Adres OWNER, 617 Petroleum Bldg., Fort Worth, Texas.

ARKANSAS
Does not have any production (proration) restrictions. The opportunity for quick "payouts" is obvious. Come here and investigate royalty and lease opportunities.
WILLIAM MONROE LAYTON
P. O. Box 411 Texarkana, Ark

CAN FIND any oil structure that will produce when penetrated. P. O. Box 303, Tonkawa, Oklahoma.

Leases and Drilling Blocks

WOULD YOU like to invest some money in some very good OIL LEASES, in proven Oklahoma and Kansas area, with a drilling contractor who will drill the wells and furnish everything? Your returns coming direct from the pipe line to you. Address Box H-943, The Oil and Gas Journal, Tulsa, Oklahoma.

OFFERING———DRILLING BLOCKS
40 acres tracts near tests.
SYDNOR'S OIL OFFICE
226 Bewley Bldg., Fort Worth, Texas.

I OWN 3,000 acres free in N. Pittsburgh & Atoka Cos. 40 to 1,000 A. tracts, no trades. Cash sale, lease or royalty, $5 to $25 per A. Townsite on 2 R.RS. near production. J. E. Cavanaugh, Baker, Oregon.

Specializing leases twenty acres up dollar acre, East Tex., La., S. Ark. Owners—Attorney, Box 1122, Little Rock, Arkansas.

New Mexico OIL LEASES WHOLESALE
40 acres at a time.
Roy G. Barton, Clovis, New Mexico.

Mailing Lists

ROYALTY INVESTORS, by deed. Speculators in low priced leases. Both by states. Oil Industry Mailing List Co., Tulsa Loan Building, Tulsa, Oklahoma.

ROYALTY OWNERS
Names and addresses in any State.
Royalty Lists, Box 105, Ft. Worth.

Royalties

Oil Royalties and Oil and Gas Leases
Bought and Sold
E. T. Marion
1109 Petroleum Building
Midland, Texas.

REPRESENTATION WANTED for Calif. Oil Royalties. California Oil Syndicate, Inc., 1541 N. Western, Los Angeles, Calif.

WANTED—A large and widely scattered spread of producing royalty. Also 10 to 20 acres royalty near several wells drilling on geophysical structure, by responsible operators. Cash ready quick action. Leonard Jones, 4172 Leimert Blvd., Los Angeles, Calif.

Oil Royalties and Leases Illinois Basin.
Write
Sam B. Raitman, 226½ Main St., Olney, Ill. P. O. Box 229

Royalties

Brokers—Salesmen

Sell in the most active area in the United States—The Permian Basin of West Texas and Southeastern New Mexico. From the standpoint of royalty investors this area has much to offer. Can supply you with choice non-producing royalties located on geophysical highs. Also drilling blocks, close in acreage to production, or wildcat leases. I maintain my own field men who cover this area for me. All offerings meet the requirements of the Security and Exchange Commission. Inquiries invited.

B. D. BUCKLEY
Paul Brown Bldg., St. Louis, Mo.

NEW MEXICO Oil and Gas Leases and royalties. Send 50 cents in stamps for new State Oil Map of New Mexico. Roy G. Barton, Clovis, New Mexico.

ANDREW J. BARRETT
The Philtower
Tulsa, Oklahoma.

F. A. SANSOME
Maintains a Complete Trading Organization for Brokers, Banks and Dealers
In
Oil Royalties.
522 Fifth Avenue, New York, N. Y.

PRODUCING OIL ROYALTIES
15 years of experience.
L. H. WITWER
214 Kennedy Bldg., Tulsa, Okla.

FOR SALE—400 acres producing Osage field, Wyoming, 41° gravity paraffine base crude. Carries 12½% royalty. 25 bbls. daily settled production. 50 proven locations at 1400 feet. Deeper sands untested. W. M. Sayre, Osage, Wyo.

Help Wanted

SALES ENGINEER
OIL REFINERY EQUIPMENT
Representative builder of oil refinery equipment will consider applications from men qualified in this field; excellent opportunity; compensation by salary. Applications must contain full details, personal and business, to receive consideration. Address Box H-957, The Oil and Gas Journal, Tulsa, Okla.

SALES ENGINEER for field development work by Eastern oil well casing manufacturer. Must be experienced in Mid-Continent and Texas casing and drilling practices. Age 30 to 40. Write fully record of education, experience (those acting as oil production engineers preferred), salary being earned and salary requested, to Box H-945, The Oil and Gas Journal, Tulsa, Okla.

SALES HELP WANTED

Salesman wanted for Texas and Oklahoma territory for Belting—a complete line of V and Flat belts. Applicants desired only from men having sales experience and fairly wide acquaintance. Commission and drawing account. Give your complete history in your reply. Our men know of this ad. Replies held in confidence. Adress Box H-952, The Oil and Gas Journal, Tulsa, Oklahoma.

Situations Wanted

ASSISTANT ENGINEER, Chief topographic draftsman formerly with U. S. Engineers, 15 years experience in Topographic, Aerial and Geologic mapping. Desires connection with large corporation in exploration or geologic Dept. U. S. A. or Foreign. Single, employed. Available on short notice. Interview can be arranged. Address Box H-956, The Oil and Gas Journal, Tulsa. Okla.

GRADUATE Civil Engineer, 1930, experienced in land acquisition, geodetic surveys and aerial photogrammetry; Texas and southwest. Licensed land surveyor. Now employed U. S. civil service; seeking position with increased responsibilities and opportunities. Adress Box H-951, The Oil and Gas Journal, Tulsa, Okla.

MAN experienced in land, leases, right-of-way, title and claim work. P. O. Box 1666, Beaumont, Texas.

ATTORNEY, A. B. and LL. B. degrees, desires position with reputable firm. Married, 31, honest, capable and now living in Denver. Five years practice in Colorado and two years experience with corporation as adjuster of complaints. Will accept position in any department. Good health. Gentile. Address Box H-954, The Oil and Gas Journal, Tulsa, Okla.

REFINERY SUPERINTENDENT, 20 years skimming and cracking experience, now employed, desires new surroundings. Address Box H-955, The Oil and Gas Journal, Tulsa, Okla.

EXPERIENCED ACCOUNTANT, reliable and capable of managing office or doing detail work. Oil preferred. Good references. Will go out of town. Address Box H-931, The Oil and Gas Journal, Tulsa, Oklahoma.

Oil Industry Printing

OIL FIELD LEGAL BLANKS
Leases, assignments, releases, township plat books, well records, etc. Request on your letterhead gets free catalog. Okla Press, 215 East Third St., Tulsa, Okla.

Incorporations

CHARTERS — Delaware best, quickest, cheapest, more liberal. Free forms. Colonial Charter Co., Wilmington, Del.

DELAWARE CHARTERS: Complete service $35. Submitted forms. Chas. G. Guyer, Inc., Wilmington, Delaware.

CLASSIFIED DISPLAY RATES

Classified Display is set with a border and may be used in one or two column sizes.

1 Inch	*1 time*	*$5.00*
1 Inch	*13 times*	*4.50 per inch*
1 Inch	*26 times*	*4.00 per inch*
1 Inch	*52 times*	*3.50 per inch*

This space may be contracted for over a period of one year from the date of the first insertion and is PAYABLE IN ADVANCE, MONTHLY.

CLASSIFIED

Classified advertising rates: First insertion, 35 cents a line; each additional insertion, 25 cents a line, PAYABLE IN ADVANCE. Six words usually make a line. Count as a word each one-letter word and each group of figures. White-space computed at regular line rate. Allow two extra lines for blind ads. Ads of less than three lines not accepted. No formal acknowledgement is made, and proofs cannot be shown in advance of publication.

	1 time	2 times	3 times	4 times		1 time	2 times	3 times	4 times
3 Lines	*$1.05*	*$1.80*	*$2.55*	*$3.30*	*7 Lines*	*$2.45*	*$4.20*	*$5.95*	*$7.70*
4 Lines	*1.40*	*2.40*	*3.40*	*4.40*	*8 Lines*	*2.80*	*4.80*	*6.80*	*8.80*
5 Lines	*1.75*	*3.00*	*4.25*	*5.50*	*9 Lines*	*3.15*	*5.40*	*7.65*	*9.90*
6 Lines	*2.10*	*3.60*	*5.10*	*6.60*	*10 Lines*	*3.50*	*6.00*	*8.50*	*11.00*

We reserve the right to withhold all advertising of questionable character. To avoid delay be sure to send remittance with copy. We will set your ad in the smallest amount of space possible and refund all overpayments. One-time insertions will not be run until fully paid. Forms close MONDAY NOON before each issue date.

THE OIL AND GAS JOURNAL
Tulsa, Oklahoma

PRODUCERS & REFINERS CORP. REFINERY
West Tulsa, Okla.
and
SUNFLOWER REFINERY, Hutchinson, Kansas

BEING OFFERED AND DISMANTLED BY

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry or H. J. Galamba — Write—Phone—Write — Robt. W. Duden
64 N. Second Street, Kansas City, Kan. Mayo Hotel, Tulsa, Okla.

TEAPOT DOME TANKS—GLENROCK, WYO.

150-10,000 BBL. STEEL ROOF TANKS—CLAYTON FARM

Offered as is or cut-down and re-erected on customers grade.

Also

Over 100 steel roof five ring 55,000 bbl. tanks located Seminole District, Okla.—Offer land—Connecting Pipe Lines—Etc. Where and as is or tanks cut down and re-erected.

SONKEN-GALAMBA SUPPLY COMPANY

W. C. Berry, 64 North Second St. Kansas City, Kansas
Robt. W. Duden, Mayo Hotel Tulsa, Okla.

For Sale—Equipment

For Sale
First Class Used Line Pipe
Perfect Threads and Couplings

50,000 feet 2" Steel
100,000 feet 2" Wrought Iron
50,000 feet 3" Steel
100,000 feet 3" Wrought Iron
75,000 feet 4" Steel
125,000 feet 4" Wrought Iron
100,000 feet 6" Steel
150,000 feet 6" Wrought Iron
40,000 feet 8" Steel
10,000 feet 10" Steel

WIRE, WRITE OR PHONE YOUR INQUIRIES

L. B. FOSTER COMPANY, INC.
P. O. Box 1647
Pittsburgh, Pa.

FOR SALE—Approximately 4000' of 6⅝" O.D. 25.20-lb. N. T. Co. Drill Pipe, Range 2, equipped with Reed Full Hole Tool Joints. Also 58 extra Reed Full Hole Tool Joints and 18 regular A.P.I. Tool Joints. This pipe and tool joints reasonably priced.
ROCKY MOUNTAIN DRILLING CO.
Casper, Wyo.

FOR SALE
CASINGHEAD GASOLINE PLANT, consisting of the following:
Two 80 H. P. Besemer gas engines.
Two 6x12x12 Ingersoll Rand Imperial Type 10 Compressors.
Storage Tanks, steel buildings.
Plant has been idle three months, in good condition. Reasonable price—would consider trade in going gas business.
PETER SILMAN
P. O. Box 312 Charleston, W. Va.

FOR SALE
Any portion of 25 miles
16 inch O.D. plain end pipe
¼ to ⅝ inch wall
EXCELLENT CONDITION
GRUNDSTEIN-TOPPER-GOLDBERG CO.
2108 So. High St.
Columbus, Ohio.

25 K.W. and 40 K.W. Gas Engines, 220 volts, D.C. Two 100 K.W. Gas Engine-Generator Sets, 220 volts, D.C. 7x6 Ingersoll-Rand ER-1 Air compressor, Six-inch Oster Pipe Threading Machine. Also large stock of lathes, pipe machines, milling machines, etc. Send for our list.
Terms to suit.
CINCINNATI MACHINERY & SUPPLY CO.
26 West 2nd St. Cincinnati, Ohio.

For Sale—Equipment

FOR SALE CHEAP—Two new 1½ KW Moon type 4C Steam Turbine Generators, guaranteed A-1 condition. Bargain to quick buyer. PRICHARD SUPPLY CO., Manning-ton, W. Va.

FOR SALE—Large rock crushers, air compressors, steam engines, boilers, water pumps, dump cars, locomotives, steam shovels, pipe and fittings, Steel rail, stiff leg derrick and various kinds of machinery and epuipment. W. P. Harley, Bowling Green, Ky.

DRILLING RIGS, drill pipe, boilers, and any kind of used rotary drilling equipment. Immediate delivery. Write, wire or phone M. ROSENBLOOM PIPE & SUPPLY CO., 3538 Mansfield Road, Shreveport, La.

WELDERS A.C. and D.C. electric motor and engine driven. Reconditioned. Service Co., 3732 Cedar Ave., Cleveland, Ohio.

For Sale—Equipment

WELDER DEMONSTRATORS. Used and new. Electric or Gasoline engine drive. Thoroughly guaranteed. 30 Days Trial. Terms if desired. Hobart Welder Exchange, Box OG-2, Troy, Ohio.

APPROXIMATELY 30,000' 2" 4.7-lb. Used Lapweld Upset Tubing. 10,000' 6⅝ 24-lb. (7" O.D.) 8 thd. used casing, 15,000' 3" used line pipe. All pipe reconditioned and 100% usable. THE ATHA SUPPLY CO., Zanesville, Ohio.

FOR SALE: Keystone No. 32 machine, boiler and tools. Inquire Probate Court, Emporia, Kansas.

FOR SALE—Complete Pipe Shop consisting of two pipe threading machines, die grinders, tools, equipment and buildings. Also entire stock of merchandise. ELLIOTT MACHINE & SUPPLY Co., A. D. Elliott, Depew, Okla.

PIPE LINE EQUIPMENT

Bargains in used pipe line equipment are listed here under "FOR SALE—EQUIPMENT". Check carefully each item listed under this heading, you may find the pieces you need at the right price.

If you can't find the needed items, then let pipe line men all over the world know it. Place your need under "Equipment Wanted". These columns are constantly watched by alert contractors, drillers—oil men throughout the country that is the secret of our 30 years success with classified advertising.

Make a habit of glancing down these columns when you pick up your issue—it will result in nice savings whether you buy or sell used equipment.

The Oil and Gas Journal
Classified Dept.

For Sale—Equipment

FOR SALE Eleven (11) 72-foot American Angle Iron Derricks, standing up. Also wire lines from ⅞" to 1⅛". MORAN PIPE & SUPPLY CO., Seminole, Okla. Phone 566.

Equipment Wanted

WANT TO RENT complete drilling rig equipped with three boilers one hundred twenty-five H.P. Hartford approved, also eight-inch drawworks and eighteen or twenty-inch mud pumps and sixty-two hundred feet four-inch drill pipe with option to purchase all after drilling first well on our Terry lease Rodessa extension area South Miller County, Arkansas. Also want purchase extra battery three boilers immediately. LAYTON OIL COMPANY, INC., Texarkana, Ark.

WANTED TO BUY used water well and core drilling machinery in first class condition. Give full details. P. O. Box 411, Texarkana, Ark.

MACHINERY WANTED—30" or 36" by 30-foot bed, Hollow Spindle Lathe with 11 or 12 inch hole in spindle. Phone or write Fred Blauvelt, BRIDGEPORT MACHINE COMPANY, Wichita, Kans.

For Sale—Maps

SUCCESSFUL OIL OPERATORS
Are Using
ZINGERY OIL MAPS
Our Up-to-Date Lease and Fee Ownership Maps of Counties and Combination Development Maps Save Time and Money.
WRITE FOR DESCRIPTIVE FOLDER
1937 Revised Edition Map of State of Texas, eastern N. M., parts of southern Okla., SW Ark. and La. shows Oil and Gas Fields in color, Counties and County seat and elevations, co-ordinated alphabetical index of fields and counties.
Price $1.00 postpaid
ZINGERY OIL MAP COMPANY
Fair Building Fort Worth, Texas

Financing

CAPITAL raised for development of Oil and Mining properties. Delaware Charters. J. B. Murrow, 299 Broadway, New York.

OIL AND GAS FINANCING WANTED
for development of tested fields. Drilled four wells all producing on 1,500 acres controlled leases.
Box H-946, The Oil and Gas Journal, Tulsa, Okla.

YOU have your organization and can give good service. Does the Billion Dollar Petroleum Industry know it? Have you made it easy for oil men to order from you? If not, the surest and best way to promote the merits of your company is to use The Oil and Gas Journal—the oldest and best petroleum publication in the world.

Patent Attorneys

JACK A. SCHLEY
PATENT LAWYER
Patents Obtained — infringement practice in all Courts—oil field experience. 1807-11 Tower Petroleum Bldg., Dallas. 2014 Second Nat'l. Bank Bldg., Houston. 707 Insurance Building, San Antonio. 433 Munsey Building, Washington, D. C. Address any of these offices.

REGISTERED PATENT ATTORNEYS
United States and Canada
Before disclosing your invention to any one, send for blank form:
"Evidence of Conception."
Instructions "How to Establish Your Rights" and complete information FREE!
LANCASTER, ALLWINE & ROMMEL
418 Bowen Building,
Washington, D. C.

PATENTS SECURED. Low cost. Reasonable Terms. 72-page book and advice free. Reg. Pat. Atty. L. F. Randolph, Dept. 748, Washington, D. C.

Geophysical Service

OIL LOCATING SERVICE
Proposed locations checked and prospective areas surveyed by proven geophysical method oil location.
P. O. Box 1528
Tulsa, Oklahoma

INDEX TO ADVERTISERS

A

Abercrombie, J. S. Co. 257
Abercrombie Pump Co.
Acme Fishing Tool Co. 210
Aero Exploration Co. 110
Air-Maze Corp 193
Air Reduction Sales Co. 180-181
Ajax Iron Works
Alco Products, Incorporated
Aldrich Pump Co., The 274
Allied Steel Products Corp.
Allis-Chalmers Mfg. Co. 32
Allsteel Products Mfg. Co., The 2
American Askania Corp.
American Cable Division of American Chain & Cable Co., Inc.
American Cast Iron Pipe Company 215
American Hammered Piston Ring 20-21
American Iron & Machine Works Back Cover
American Locomotive Company 102-103
American Manganese Steel Company
American Meter Company 48
American Roller Bearing Company 87
American Rolling Mill Co., The 23
American Sand-Banum Co., The 242
American Seismograph Company
American Steel & Wire Company
American Steel Works 228
Appleton-Atlas Car Mover Corporation 275
Arrowhead Iron Works 217
Athey Truss Wheel Co. 184
Atlas Imperial Diesel Engine Co.
Atlas Supply Co.
Axelson Manufacturing Company

B

B. & M. Construction Corporation 227
Babcock & Wilcox Tube Co., The
Badger & Sons Co., E. B. 112D
Bakelite Corporation
Baker Oil Tools, Inc. 50
Baldwin-Southwark Corporation 114
Baroid Sales Company
Beaumont Iron Works Co.
Bethlehem Steel Co. 112B-112C
Black, Sivalls & Bryson, Inc.
Braden Steel Corporation 118
Bradford Motor Works, Inc.
Brance-Krachy Company, Inc. 200
Brewster Company, The
Bridgeport Machine Company 192
Broderick & Bascom Rope Co. 47
Brown Instrument Co., The 14
Buckeye Traction Ditcher Co., The 155
Butler Manufacturing Co.
Byron Jackson Co. 12

C

Cameron Iron Works, Inc.
Carey Company, The Philip 25
Carnegie-Illinois Steel Corporation
Carson Machine & Supply Co.
Cast Iron Pipe Research Association, The 124
Caterpillar Tractor Co. 34-35
Central Forging Co., The 210
Chain Belt Company
Champion Machine & Forging Co., The 203
Chaplin-Fulton Mfg. Co., The 242
Chapman Valve Mfg. Co., The 81
Chemical Process Co., Inc., The
Chevrolet Motor Company
Chicago Bridge & Iron Company 84-85
Chiksan Oil Tool Co., Limited
Cities Service Oil Co.
Clark Brothers Company 122
Classified Advertising 302-303
Clayton Mfg. Co.
Cleveland Trencher Company, The 105
Climax Molybdenum Company 8
Columbia Gas & Electric Co. 255
Columbian Steel Tank Co.
Consolidated Chemical Industries,
Continental National Bank of Fort Worth
Continental Oil Co.
Continental Supply Company, The 141-143
Cooper, Fred E. 131
Cooper-Bessemer Corp., The 66-67
Coppus Engineering Corp. 261
Crane Co. 7-207
Crane Packing Co. 18
Crutcher-Rolfs-Cummings, Inc. 182
Cummins Engine Company 147
Curtin, W. H., & Co., The

D

Darling Valve & Mfg. Co. 16
Davis Regulator Co. 262
Dearborn Chemical Company 11
De Cavel & Roegiers
De La Vergne Engine Co. 114
Demag 280
Devine, J. P., Mfg. Co., The 215
Diamond Chain & Mfg. Co.
Dickey Clay Mfg. Co., W. S.
Dodge—Division of Chrysler Corp.
Dodge Mfg. Corporation 266
Doheny Stone Drill Co.
Dow Chemical Company
Dowell, Incorporated
Dresser, S. R., Mfg. Co. 186
Dunn, C. Hobson, 127
Du Pont de Nemours & Co., Inc., E. I. 239
Durametallic Corp.

E

Eagle-Picher Lead Co. 3
Eastman Oil Well Survey Co.
Economy Electric Lantern Co.
Edward Valve & Mfg. Co., The
Emsco Derrick & Equipment Company
Engineering Laboratories, Inc. 204
Ensign Carburetor Co., Ltd. 262
Ethyl Gasoline Corporation
Eureka Tool Co.
Everstick Anchor Co.

F

Failing Supply Co., Geo. E.
Filtrol Co. of California
First National Bank of Fort Worth
First National Bank in Houston
First National Bank & Trust Co. of Tulsa, The 260
Fisher Governor Company 199
Fitler, Edwin H., Co., The
Fluid Packed Pump Co.
Fluor Corporation, Ltd. 29
Foote Bros. Gear and Machine Corporation
Ford Motor Co.
Fort Worth National Bank, The
Foster Wheeler Corp.
Four Wheel Drive Auto Co., The
Foxboro Co., The 36
Franks Mfg. Corp.
Frick-Reid Supply Corporation 188-189
Frost National Bank 232

G

Gardner-Denver Company 10
Garlock Packing Company, The
Gas Pipe Line Service Corp. 291
Gaso Pump & Burner Mfg. Co. 72-73
Gasoline Products Co., The
Gates Rubber Co., The
Gatke Corporation
Gearench Mfg. Co.
General American Transportation Corporation—Terminal Division
General Electric Company 171
General Motors Truck Co.
General Paint Corporation 214
General Power Co. 259
Geophysical Service, Inc.
Gilmer Company, L. H.
Girdler Company, The 79
Globe Oil Tools Company
Globe Steel Tubes Co.
Goodall Rubber Company
Goulds Pumps, Inc. 129
Grant Oil Tools Company
Graver Tank & Mfg. Co., Inc.
Gray Processes Corporation, The
Great Lakes Coal & Coke Co.
Green Head Bit & Supply Co.
Grossrohr-Verband 230
Gulberson Corporation, The
Gulf Oil Corp.
Gulf States Utilities Co. 168
Gustin-Bacon Mfg. Co. 134

H

Hall & Company, R. B. 204
Halliburton Oil Well Cementing
Hanlon-Buchanan, Inc.
Happy Belting Company
Harnischfeger Corporation 24
Harrisburg Steel Corporation
Hazard Wire Rope Division of American Chain & Cable Co., Inc. 17
Heeter, C. M., Sons Co.
Hercules Tool Company
Hewitt Rubber Corp. 243
Hilgers Maschinen-Und Apparte 202
Hill, Hubbell & Co. 214
Hinderliter Tool Company
Hoard Exploration Company
Hopper Machine Works, Inc.
Hough Mfg. Co., The Charles N.
Houston Lighting & Power Company 173
Houston Pipe Line Co. 156
Hughes Tool Co. Front Cover
Humble Oil & Refining Co. 249
Hunt Tool Company 257
Hydrauger Corporation, Ltd.
Hydril Co.
Hynes, Eugene J., & Co., Inc.

I

Independent Exploration Company
Ingersoll-Rand Co. 46
International Derrick & Equipment Co., The
International Filter Co.
International Harvester Co. of America, Inc. 9
International Nickel Company, Inc., The

J

J & S Carburetor Co.
Jacobs Wind Electric Co., Inc., The 253
Jacobson, E. C.
Jarecki Manufacturing Company
Jenkins Bros. 237
Jensen Brothers Manufacturing Co. 256
Jerguson Gage & Valve Co. 275
Johns-Manville Corporation 132
Johnston & Jennings Co. (Oceco Division) 229
Jones, Inc., T. R. 224
Jones & Brooks, Inc. 223
Jones Company, The S. M.
Jones & Laughlin Steel Corporation 37

K

Kane Boiler Works
Kelly-Dempsey & Co. 224
Kellogg, M. W., Company, The
Kennedy Valve Mfg. Co. 270
Kerotest Manufacturing Co.
Keuffel & Esser Co. 112A
Keystone Driller Co. 229
Koppers Company 20-21
Koppers Company, American Hammered Piston Ring Division 20-21
Koppers Company, Bartlett Hayward Division 20-21
Kropp Forge Company 194

L

Laminated Shim Co., Inc. 194
Landis Machine Co., The 1
Lane Wells Co., The
Larkin Packer Company, Inc. Inside Back Cover
Latex Construction Company 226
Layne and Bowler Co., The
Layne & Bowler, Inc.
Leeds & Northrup Company
Leland Equipment Co. 108-109
Leonard Construction Co. 252
Le Roi Company
Leschen, A., Sons Rope Co.
Lincoln Electric Company, The 41
Linde Air Products Co., The 27
Link-Belt Company 278
Lone Star Cement Corporation
Lucey Products Corporation
Ludlow Valve & Mfg. Co., The 253
Lufkin Foundry & Machine Co.
Lufkin Rule Co., The
Lummus Co., The 26
Lunkenheimer Co., The 39
Lycoming Manufacturing Company 22

Mc

McAlear Mfg. Co., The
McCord Radiator & Mfg. Co. 209
McGee, Reece E. 220
McGregor Working Barrel Company 285
McKissick Products

M

MacClatchie Manufacturing Company
Macwhyte Co.
Maloney Tank Mfg. Co.
Manhattan Rubber Mfg. Division
Mannesmannrohren-Werke 150
Manzel Brothers Company 272
Marmon-Herrington Co., Inc.
Martin-Decker Corp.
Mathey Machine Works, C. A.
Mayes Brothers, Incorporated 222
Medart Company, The
Meehanite Metal Corporation 271
Mepham, Geo. S., Corporation
Merco Nordstrom Valve Co. Inside Front Cover
Metric Metal Works 48
Midco Tool & Supply Co.
Mid-Continent Supply Co. 88B
Midwest Piping & Supply Company, Inc., The 148
Miller Sand Pump Co.
Mission Mfg. Co., The 13
Monsanto Chemical Company 252
Mulligan Welding Service Corporation 238
Muskogee Iron Works

N

National Airoil Burner Company 204
National Bank of Tulsa 211
National Lead Co.
National Supply Co., The 69
National Transit Pump & Machine
National Tube Co. 19
Natural Gas Equipment Co. of Texas
Naylor Pipe Company 30
New Deal Specialty Co., The 241
Newman, Hender & Co., Ltd. 217
Norvell-Wilder Supply Company 160
Nueces County Navigation Commission, The 236
Nugent & Co., Wm. W., Inc., Mfgrs. 6

O

O-K Machine & Manufacturing Co. 233
O'Bannon Co., Walter 183
O. C. S. Mfg. Co., The
Oceco Fittings 229
Oil Center Tool Co.
Oil Well Supply Company 83
Oil-World Exposition
Oklahoma Gas & Electric Company 172
Oklahoma Contracting Corporation 225
Oklahoma Portland Cement Co.
Oliver United Filters, Inc.
Oster Manufacturing Company
Otis Pressure Control, Inc.
Owens-Illinois Glass Company
Oxweld Acetylene Company 27
Ozalid Corporation 235

P

Page Steel & Wire Division of American Chain & Cable Co.,
Parkersburg Rig & Reel Co., The
Parsons Company, The 215
Patterson-Ballagh Corporation
Penberthy Injector Co.
Petroleum Electric Power Club 164-165
Petroleum Engineering Research
Petroleum Rectifying Company
Petty Geophysical Engineering Co.
Pittsburgh-Des Moines Steel Company 45
Pittsburgh Equitable Meter Co.
Pittsburgh Steel Company 33
Polymerization Process Corporation, The
Pomona Pump Co.
Portable Rig Co.
Prest-O-Lite Company, Inc., The 27
Price Co., H. C. 117
Pritchard & Co., J. F. 221
Public Service Company of Oklahoma 175
Pure Oil Co.

R

Reading-Pratt & Cady Division of American Chain & Cable Co., Inc. 44
Rector Well Equipment Co., Inc.
Reed Roller Bit Company 257
Regan Forge & Engineering Co. 257
Reilly Tar & Chemical Corporation 28
Republic Steel Corporation 144-145
Ridge Tool Co., The
Rieber Laboratories
Ruberoid Co., The 120
Ryerson & Son, Inc., Joseph T. 275

S

Schlumberger Well Surveying Corporation
Sealed Power Corporation 139
Security Engineering Co.
Seismograph Service Corp.
Shaffer Specialty Co., The
Shaffer Tool Works
Shand & Jurs Co.
Sharples Specialty Co., The
Sheehan Pipe Line Construction Co. 220
Shell 38
Sinclair Refining Company, Inc.
Skinner Co., M. B. 43
Smith Brothers Construction Corporation 226
Smith, A. O., Corporation 4-5
Smith Company, E. M.
Smooth-On Mfg. Co.
Socony-Vacuum Oil Co.
South Chester Tube Co.
South Texas Geophysical Corp.
Southwestern Gas & Electric Co. 169
Spang & Company 158
Spang, Chalfant & Co., Inc.
Stahlunion Export 244
Standard Brake Lining Co. 257
Star Drilling Machine Company
Stearns-Roger Mfg. Co., The 31
Steel Union-Sheet Piling, Inc. 244
Sterling Machinery Corporation 210

T

Taylor Instrument Companies 152-153
Texaco Development Corporation
Texas Electric Service 166
Texas Iron Works
Texas Steel Co. 246
Thornhill-Craver Co., Inc.
Timken Roller Bearing Company 42
Timken Steel & Tube Co.
Trackson Company 15
Tretolite Co.
Trinity Portland Cement Company
Truman-Smith Construction Co., The 221
Tube Turns, Inc.
Tulsa Boiler & Machinery Co. 240
Tulsa Chamber of Commerce
Twin-Disc Clutch Co. 196

U

Union Asbestos and Rubber Co. 190
Union Carbide & Carbon Corporation 27
Union Carbide Sales Company 27
Union Wire Rope Corporation
United Gas System 234
United Motors Service, Inc.
United States Rubber Company 76-77
United Supply & Manufacturing Company
Universal Atlas Cement Co. 65
Universal Oil Products Co. 70

V

Vernon Tool Co., Ltd.
Vogt, Henry, Machine Co. 40
Vortox Mfg. Co. 245

W

Wailes Dove-Hermiston Corporation 106
Waldron Corp., John 229
Walker Company, W. L. 193
Walworth Company 159
Watson-Stillman Co., The 274
Waukesha Motor Company
Wedge Protectors, Inc. 198
West Texas Utilities Company 178
Westinghouse Electric 177
Wheatley Bros. 136-137
Wheeling Machine Products Co. 275
Whitaker, Inc., O. C. 223
White Deer Pipe Line Construction Co., Inc. 222
Wickwire Spencer Steel Company
Williams & Co., J. H. 265
Williams Brothers Corp. 218
Wincharger Corporation 195
W. K. M. Company, Inc.
Worthington Pump & Machinery Corporation 213

Y

Youngstown Sheet & Tube Co., The 208